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FOURTEENTH REPORT

OF THE

DAIRYMEN'S ASSOCIATION

OF THE

PROVINCE OF QUEBEC

SUPPLEMENT TO THE REPORT OF THE HON. COMMISSIONER OF AGRICULTURE AND COLONISATION

1895

PRINTED BY ORDER OF THE LEGISLATURE.

QUEBEC

PRINTED BY CHARLES-FRANÇOIS LANGLOIS

PRINTER TO HER MOST EXCELLENT MAJESTY THE QUEEN

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FOURTEENTH ANNUAL REPORT

OF THE

DAIRYMEN'S ASSOCIATION

OF THE

PROVINCE OF QUEBEC

To the Hon. Commissioner of Agriculture and Colonisation,

Quebec.

SIR,

The Board of Directors of the Dairymen's Association of the Province of Quebec has the honour to offer you the following report of its operations during the year 1895, and of the Annual Meeting held at Waterloo 3rd, 4th and 5th December last.

THE SECRETARY-TREASURER OF THE DAIRYMEN'S

ASSOCIATION OF THE PROVINCE OF QUEBEC,

EMILE CASTEL.

St. Hyacinthe, Jan. 7th, 1896.

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OFFICERS AND DIRECTORS OF THE DAIRYMEN'S ASSOCIATION

FOR 1896.

Honorary President: The Hon. P. B. de LaBruère, St. Hyacinthe.

President: L'Abbé T. Montminy, St. George de Beauce.

Vice-President: S. A. Fisher, Knowlton.

Secretary-Treasurer: Emile Castel, St. Hyacinthe.

DIRECTORS.

District		Names	Residence
Arthabaska	Messrs	D. O. Bourbeau	Victoriaville.
Beauce		J. de L. Taché	Scott Junction.
Beauharnois		Robert Ness	Howick.
Bedford		H. S. Foster	Knowlton.
Charlevoix and Saguenay		J. D. Guay	Chicoutimi.
Chicoutimi		Jos. Girard, M.P.P	St.-Gédéon, Lac St.-Jean
Gaspé		L. T. Brodeur	St.-Hugues.
Iberville		Michel Monat	Mount Johnson.
Joliette		Sam Chagnon	St. Paul l'Ermite.
Kamouraska		J. C. Chapais	St. Denis en-bas.
Montmagny		Gabriel Dumont	Ste. Hénédine.
Montreal		Alexis Chicoine	St. Marc.
Ottawa		J. A. Vaillancourt	Montreal.
Quebec		Ed. A. Barnard	L'Ange Gardien, Mtcy.
Richelieu		J. L. Lemire	La Baie du Febvre.
Rimouski		Chs. Préfontaine	Isle Verte.
St. François		J. A. Camirand	Sherbrooke.
St. Hyacinthe		M. MacDonald, M.P.P	Acton Vale.
Terrebonne		Dr. W. Grignon	Ste. Adèle.
Three Rivers		L'Abbé D. Gérin	St. Justin.

LEGISLATION.

AUTHORISING THE FORMATION OF AN ASSOCIATION UNDER THE NAME OF "DAIRY ASSOCIATION OF THE PROVINCE OF QUEBEC."

(1749 to 1755 Q. R. S. and Schedule.)

1749. The Lieutenant-Governor in Council may authorise the formation for the Province of an association, having for its object to promote improvement in the manufacture of butter and cheese, and of all things connected therewith, under the name of the "Dairy Association of the Province of Quebec," 45 v. c. 66, s. 1.

1750. The association shall be composed of at least fifty persons, who shall sign a declaration in the form of the schedule annexed to this section; and every member of the association shall subscribe and pay, annually, a sum of at least one dollar to the funds of the association.

The Commissioner of Agriculture and Colonisation shall be *ex-officio* a member of the association. 45 v., c. 66, s. 2 and 6,; 50 v., c. 7. s. 12.

1751. Such declaration shall be made in duplicate, one to be written and signed on the first page of a book to be kept by the association for the purpose of entering therein the minutes of their proceedings, during the first year of the establishment of such association, and the other shall be immediately transmitted to the Commissioner of Agriculture and Colonisation, who shall, as soon as possible after its reception, cause to be published, a notice of the formation of such society in the Quebec Official Gazette. 45 v. c. 66, s. 3; 50 v. c. 7, s. 12.

1752. From and after the publication, in the Quebec Official Gazette, of the notice of the formation of the association, it will become and shall be a body politic and corporate, for the purposes of this section, and may possess real estate to a value not exceeding twenty thousand dollars. 45 v., c. 66, s. 4.

1753. The association shall have power to make by-laws, to prescribe the mode or manner of admission of new members, to regulate the election of its affairs and property. 45, v., c. 66, s. 5.

"**1753***a*. The association, with a view of obtaining a more prompt and complete diffusion of the best method to be followed for the production of milk, the

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fabrication of dairy produce, and, in general the advancement of the dairy industry, may subdivide the Province into regional divisions, in which syndicates, composed of proprietors of butter and cheese factories and like industries, may be established.

The formation and working of such syndicates are governed by the regulations made by the said Association and approved by the Lieutenant-Governor in Council: and such syndicates shall be under the direction and supervision of the Association.

To such syndicates, the Lieutenant Governor in Council may grant, out of the Consolidated Revenue Fund, a subsidy equal to one-half of the expenses incurred for the service of inspection and instruction organised therein, including the salary of inspectors, their travelling and other expenses directly connected therewith, but not to exceed the sum of two hundred and fifty dollars for each syndicate.

"**1753***b*. The inspectors, including the Inspector-General, are appointed by the Lieutenant-Governor in Council, and shall be experts who hold certificates of competence from the board of examiners mentioned in article 1753*d*.

The inspectors are to superintend the production and supply of milk, as well as the manufacture of butter and cheese in the establishments so organised into such syndicates, the whole in conformity with the regulations made by the said Association and approved by the Lieutenant Governor in Council.

"**1753***c*. The salary of the Inspector-General shall be paid by the Association.

His duties shall be defined by regulations to be passed by the Association and approved by the Lieutenant Governor in Council.

"**1753***d*. A board of examiners may be appointed by the Association for the purpose of examining candidates for the office of inspector.

The working of such board shall be governed by the regulations to be passed for that purpose by the Association and approved by the Lieutenant-Governor in Council.

"**1753***e*. It shall be lawful for the Lieutenant-Governor in Council to grant to the said society an additional sum of one thousand dollars, annually, for the direction and supervision of the syndicates, for the maintenance and working of the boards of examiners above mentioned.

1754. The association shall hold an annual meeting, at such time and place as shall have been selected by the board of directors, besides those which may have been prescribed and determined by the by-laws.

At such annual meeting, the association shall elect a president, and vice-president, a secretary-treasurer and also one director for each judicial district of the Province, chosen from among the members of the association, domiciled in such districts. 45 v., c. 66, s. 7.

1755. The officers and directors of the association shall prepare and present, at the annual meeting of the association, a detailed report of their operations during

the past year, indicating the names of all the members of the association, the amount subscribed and paid by each, the names of the factories, inventions, improvements and products which deserve public notice, and giving all the information which deserves public notice, and giving all the information which they deem useful in the interest of the dairy industry. 45 v., c. 66, s. 8.

SCHEDULE

MENTIONED IN ARTICLE 1750.

We, the undersigned, agree to form ourselves into an association under the provisions of section thirteenth of chapter seventh of title fourth of the Revised Statutes of the Province of Quebec, respecting the Dairy Association of the Province of Quebec; and we hereby, severally, agree to pay to the treasurer annually, while we continue members of the Association, the sums opposite to our respective names, and we further agree to conform to the rules and by-laws of the said Association:

NAMES.	$	CTS.

45, V., c. 66, Schedule.

52 VICT., 1889 CAP. XXII.

AN ACT TO PROVIDE FOR THE FORMATION OF FARMERS' AND DAIRYMEN'S ASSOCIATIONS.

Assented to 21*st March*, 1889.

HER MAJESTY, by and with the advice and consent of the Legislature of Quebec, enacts as follow:

1. The following section is added after section thirteenth of chapter seventh of title fourth of the Revised Statutes of the Province of Quebec:

SECTION XIV.

FARMERS' AND DAIRYMEN'S ASSOCIATION.

"**1755***a*. The Lieutenant-Governor in Council may authorise the formation in each judicial district of the Province, of an association, having for its object the promotion of agriculture, the improvement in the manufacture of butter and cheese, the inspection of butter and cheese factories, and all other things in connection therewith, to be called the "Farmers' and Dairymen's Association of the District of

"**1755***b*. The association shall be composed of at least twenty-five persons who shall sign a declaration in the form of the schedule annexed to this section.

Every member of the association shall subscribe and pay, annually, a sum of at least one dollar to the funds of the association.

"**1755***c*. The Commissioner of Agriculture and Colonisation shall be *ex-officio* a member of the association.

"**1755***d*. Such declaration shall be made in duplicate, one to be written and signed on the first page of a book, to be kept by the association for the purpose of entering therein the minutes of their proceedings, and the other shall be immediately transmitted to the Commissioner of Agriculture and Colonisation, who shall, as soon possible after its reception, cause to be published a notice of the formation of such association in the Quebec Official Gazette.

"**1755***e*. From and after the publication, in the Quebec Official Gazette, of the notice of the formation of the association, such association will become and shall be a body politic and corporate for the purpose of this section, and may possess real estate to the value not exceeding five thousand dollars.

"**1755***f*. The association shall have power to make by-laws, to prescribe the mode or manner of admission of new members, to regulate the election and appointment of its officers and employés, and, generally, the management of its affairs and property, for the purpose of carrying out the objects of the association.

"**1755***g*. The first meeting of the association shall be held at the *chef-lieu* of the district, on the second Wednesday of the month following the one in which the notice of formation of the association is published in the Quebec Official Gazette.

"**1755***h*. The association shall hold an annual meeting, at such time and place as shall have been selected by the board of directors.

"**1755***i*. At such annual meeting, the members of the association present shall elect three directors from each county forming the judicial district for which the association is formed, chosen from the members of the association domiciled in the said counties, who shall constitute the board of directors of the association.

"**7155***j*. The board of directors shall elect, from their members, a president and a vice-president, and shall appoint a secretary-treasurer and such other officers and employés as they may deem neccessary for carrying out the objects of the association.

"**1755***k*. The directors shall prepare and present at the annual meeting of the association a detailed report of their operations during the past year.

Such report shall indicate the names of all the members of the association, the amount subscribed and paid into the hands of the secretary-treasurer, the names and number of the factories in their district, and give such other information deemed useful and in the interest of agriculture and the dairy industry.

A triplicate of such report shall be transmitted to the Commissioner of Agriculture of the Province, and another to the Dairy Association of the Province of Quebec.

2. This act shall come into force on the day of its sanction.

SCHEDULE

MENTIONED IN ARTICLE 1755*b*.

We, the undersigned, agree to form ourselves into an association under the provisions of section fourteenth of chapter seventh of title fourth of the Revised Statues of the Province of Quebec, respecting Farmers' and Dairymen's Associations, and we hereby severally agree to pay to the secretary-treasurer, annually, while we continue members of the association, the sums opposite our respective

names, and we further agree to conform to the rules and by-laws of the said association.

NAMES.	$	CTS.

R. S. Q., TITLE III, CAP. IV, SECT. III.

SOCIETIES FOR THE MANUFACTURE OF BUTTER OR CHEESE OR OF BOTH.

§ 1.—*Formation of such Societies.*

5477. When in any part of the province, five or more persons have signed a declaration, that they have formed an association for the manufacture of butter or cheese (or of both, as the case may be) in a certain place which shall be designated as their principal place of business, and have deposited such declaration in the hands of the prothonotary of the Superior Court in the district where the society intend to do business, such persons and all such other persons as may thereafter become members of such society, their heirs, executors, curators, adminstrators, successors and assigns, respectively, shall constitute a body politic and corporate, under the name of "butter and cheese manufacturing society (or both as the case may be) of (name of the place and number of the manufactory as mentioned in the declaration)."

The prothonotary shall deliver to such company a certificate stating that such declaration has been made, which certificate shall be registered in the registry office of the place in which such society has its principal place of business, and be also without delay, forwarded to the Commissioner of Agriculture and Colonisation. 45 V., c. 65. s. 1; 50 V., c. 7, s. 12.

5478. The declaration, to be made nnder the provisions of this section, shall, in order to constitute into a corporation any butter and cheese manufacturing society, be in the form annexed to this section. 45 V., c. 65, s. 9.

§ 2.—*General Powers and Duties.*

5479. Every such society so formed, for the purposes for which it has been established, shall enjoy all the powers vested in ordinary corporations, especially that of choosing officers from among its members, of passing by-laws not contrary to the laws of this Province, to determine the number for the internal management, and for conducting its proceedings and the administration of its affairs in general. 45 V., c. 65, s. 2.

5480. The first meeting of the shareholders of the society shall take place within the eight days following the deposit of the declaration mentioned in article 5477, after a special notice to that effect has been given to the shareholders, by at least two shareholders of the said society, which notice shall be given at least two days before the meeting for the purpose of electing officers and approving the by-laws of the society.

The annual general meetings afterwards and all special meetings of the society shall be regulated by by-laws. 45 V., c. 65, s. 3.

5481. A book shall be kept by each society for entering the subscriptions of shares, and another for entering in detail all the transactions of the society. 45 V., c. 65 s. 4.

5482. Each of such books and the by-laws shall be constantly open to the inspection of the members of the society. 45 V., c. 65, s. 5.

5483. During the course of the month of December, in each year, a statement of its operations for the year shall be forwarded to the Commissioner of Agriculture and Colonisation by each society formed under this section. 45 V., c. 65, s. 7; 50 V., c. 7, s. 12.

SCHEDULE.

IN ACCORDANCE WITH ARTICLE 5478.

We, the undersigned, agree to form ourselves into an association in virtue of paragraph , the first of the third section of the fourth chapter of the eleventh title of the Revised Statutes of the Province of Quebec, to be entitled "The Association for the manufacture of butter (*or*) cheese, (*or*) of butter and cheese, of the parish of county of , and we pledge ourselves to conform to all the rules and by-laws of the said association.

(*Signatures.*) 45 Vic., c. 65, Schedule.

49 VICT., CAP. XLII, 1886, OTTAWA.

AN ACT TO PROHIBIT THE MANUFACTURE AND SALE OF CERTAIN SUBSTITUTES FOR BUTTER.

(*Assented to 2nd June*, 1886.)

Whereas the use of certain substitutes for butter, heretofore manufactured and exposed for sale in Canada, is injurious to health; and it is expedient to prohibit the manufacture and sale thereof: Therefore, Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:

1. No oleomargarine, butterine or other substitute for butter, manufactured from animal substance other than milk, shall be manufactured in Canada, or sold therein, and every person who contravenes the provisions of this Act in any manner whatsoever, shall incur a penalty not exceeding four hundred dollars, and not less than two hundred dollars and, in default of payment, shall be liable to imprisonment for a term not exceeding twelve months and not less than three months.

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52 VICT. CAP. XLIII, 1889, OTTAWA.

AN ACT TO PROVIDE AGAINST FRAUDS IN THE SUPPLYING OF MILK TO CHEESE, BUTTER AND CONDENSED MILK MANUFACTORIES. ([1])

Assented to 2nd May, 1889.

Her Majesty. by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. No person shall sell, supply or send to any cheese, or butter, or condensed milk manufactory, or to the owner or manager thereof, or to any maker of butter, cheese or condensed milk, to be manufactured, milk diluted with water, or in any way adulterated, or milk from which any cream has been taken, or milk commonly known as skimmed milk.

2. No person who supplies, sends, sells or brings to any cheese, or butter, or condensed milk manufactory, or to the owner or manager thereof, or to the maker of cheese, or butter, or condensed milk, any milk, to be manufactured into butter or cheese, or condensed milk, shall keep back any portion of that part of the milk known as strippings.

3. No person shall knowingly sell, supply, bring or send to a cheese, or butter,

([1]) The Ontario courts have declared to be "ultra vires," an act of the legislature on the same subject like that which exists in our Provincial Statutes. The Federal Act was passed subsequently to this judicial decision, and all prosecutions regarding frauds in the furnishing of milk should, as a measure of prudence, be instituted in virtue of this Act.

or condensed milk manufactory, or to the owner or manager thereof, any milk that is tainted or partly sour.

4. No person shall sell, send or bring to a cheese, or butter, or condensed milk factory, or to the owner or manager thereof, or to the maker of such butter, or cheese, or condensed milk, any milk taken or drawn from a cow that he knows to be diseased at the time the milk is so taken or drawn from her.

5. Every person who, by himself, or by any other person to his knowledge, violates any of the provisions of the preceding sections of this Act, shall, for each offence, upon conviction thereof before any justice or justices of the peace, forfeit and pay a fine not exceeding fifty dollars and not less than five dollars, together with costs of prosecution, and in default of payment of such penalty and costs, shall be liable to imprisonment, with or without hard labor, for a term not exceeding six months, unless the said penalty and costs of enforcing the same, be sooner paid.

6. The person on whose behalf any milk is sold, sent, supplied or brought to a cheese, or butter, or condensed milk manufactory for any of the purposes aforesaid, shall *primâ facie* be liable for the violation of any of the provisions of this Act.

7. For the purpose of establishing the guilt of any person charged with the violation of any of the provisions of sections one, or two, of this Act, it shall be sufficient *primâ facie* evidence on which to found a conviction to show that such milk so sent, sold, supplied or brought to a manufactory as aforesaid to be manufactured into butter, or cheese, or condensed milk, is substantially inferior in quality to pure milk, provided the test is made by means of a lactometer or cream gauge, or some other proper and adequate test, and is made by a competent person. Provided always that a conviction may be made or had on any other sufficient legal evidence.

8. In any complaint or information made or laid under the first or second sections of this Act, and in any conviction thereon, the milk complained of may be described as deteriorated milk, without specification of the cause of deterioration, and, thereupon, proof of any of the causes or modes of deterioration mentioned in either of the said two sections, shall be sufficient to sustain conviction. And in any complaint, information, or conviction under this Act, the matter complained of may be declared, and shall be held to have arisen, within the meaning of "The Summary Convictions Act," at the place where the milk complained of was to be manufactured, notwithstanding that the deterioration thereof was effected elsewhere.

9. No appeal shall lie from any conviction under this Act except to a Judge of a Superior, County, Circuit or District Court, or to the chairman or judge of the Court of the Sessions of the Peace, having jurisdiction where the conviction was had; and such appeal shall be brought, notice of appeal in writing given, recognisance entered into or deposit made within ten days after the date of conviction, and shall be heard, tried, adjudicated upon and decided without the interven-

tion of a jury, at such time and place as the court or judge hearing the same appoints, within thirty days from the date of conviction, unless the said court or judge extends the time for hearing and decision beyond such thirty days; and in all other respects not provided for in this Act the procedure under "The Summary Convictions Act," so far as applicable, shall apply.

10. Any person accused of an offence under this Act, and the husband or wife of such person, shall be competent and compellable to testify.

11. Any pecuniary penalty imposed under this Act shall, when recovered, be payable one-half to the informant or complainant, and the other half to the owner, treasurer or president of the manufactory to which the milk was sent, sold or supplied for any of the purposes aforesaid, in violation of any of the provisions of this Act, to be distributed among the patrons thereof in proportion to their respective interest in the product thereof.

CONSTITUTION OF THE DAIRYMEN'S ASSOCIATION.

INCORPORATED BY THE STATUTE 45 VICT., CHAP. 66, P. Q.

1. The Association takes as its designation: "The Dairymen's Association of the Province of Quebec."

2. The object of the association is to encourage the improvement of the manufacture of butter and cheese and all things connected with the above manufacture.

3. To become a member of the association, a subscription of at least one dollar ($1.00) a year is all that is requisite.

4. The affairs of the association, shall be under the direction of a president, a vice-president, a secretary-treasurer, and certain directors named in accordance with the act of incorporation, all of whom shall form the Board of Directors of the Association, and shall make a report of the operations of the association at the annual general meeting of the association.

5. The election of the officers and directors shall take place at the annual general meeting, the date of which shall be fixed by the Board; to insure the right of voting at the above election, the previous payment of subscriptions will be requisite.

6. When more than one candidate is proposed for the office, the voting shall be by *sitting* and *standing* (*assis* et *levés*), the secretary shall count the votes, and the president shall declare the candidate who shall have the majority of votes.

7. The officers elected shall remain in office until the following election, and shall be re-eligible.

8. The president shall take the chair at the general meetings, and at the meetings of the board of directors.

9. The president shall be, *ex-officio*, a member of all the committees of the board of directors.

10. To the secretary-treasurer shall be entrusted all the moneys and other valuables belonging to the association; he shall keep, in a special register, minutes of all meetings of the association as well as of the board of directors, and these minutes shall be signed by the president, or, in his absence, by the vice-president, and by the secretary-treasurer: he shall, besides, keep books in which shall be entered, regularly and without delay, all the monetary operations of the association. At the end of the fiscal year of the association, the secretary-treasurer shall present before the board a statement of accounts for the directors' approbation.

11. The vacancies which occur among the officers or directors shall be temporarily filled up by the board, and the board shall also nominate the directors for those judicial districts which are not as yet represented.

12. The board, to ensure greater efficiency, shall be at liberty to claim the services of specialists as advisers.

Rules and Regulations of the Dairymen's Association.

1. The annual or general meetings of the association, as well as those of the board of directors, shall be called by notice in writing from the secretary-treasurer to each of the members of the association and of the board. Notice of the meetings of the association shall be given at least a month beforehand.

2. At the request of three directors or officers of the association, the president may call a meeting of the board of directors; the call shall be in the form mentioned above.

3. At the meeting of the board of directors, three shall form a quorum, exclusive of the president and vice-president.

4. The board of directors may name, from among its members, a committee to audit the accounts, and other committees for any purpose it may think necessary.

5. The order of business at general and official meetings shall be determined by the board of directors.

6. No question shall be submitted for discussion except it be in writing and placed before the secretary-treasurer.

7. The secretary-treasurer shall be obliged to furnish security to the amount of $400.00, which security shall be subject to the approval of the board.

SYNDICATES OF CHEESE AND BUTTER FACTORIES.

BY-LAWS ADOPTED BY THE DAIRY INDUSTRY ASSOCIATION AND ASSENTED TO BY THE LIEUTENANT-GOVERNOR IN COUNCIL.

COPY *of the report of a committee of the Honorable Executive Council, dated January 23rd*, 1891, *approved by the Lieutenant-Governor, January 24th*, 1891. (Translation.)

No. 75.—On the approval of certain regulations of the Dairymen's Association.

The Hon. the Commissioner of Agriculture and Colonisation, in a memorandum, dated the twenty-third of January of the current year, 1891, recommends that the regulations of the Dairymen's Association of the Province of Quebec, a copy of which is annexed to the above memorandum, be approved.

Certified true copy.

(Signed),

GUSTAVE GRENIER,

Clerk of the Executive Council.

REGULATIONS OF THE DAIRYMEN'S ASSOCIATION.

Whereas, by a law passed at the last session of the Legislature of the Province of Quebec, the Dairymen's Association of the Province of Quebec was authorised to create regional divisions in which the proprietors of creameries, cheese factories, and other dairy establishments may form themselves into syndicates for the purpose of securing a more prompt and complete diffusion of the best methods of conducting the production of milk, the manufacture of dairy products, and the advancement in general of the dairy industry;

And whereas the said association was, by the same law, entrusted with the duty of:

1. Establishing regulations for the formation and working of the said syndicates;

2. Of directing and superintending the syndicates;

3. Of establishing rules to define the duties of the Inspector-General and of the inspectors who are to superintend the production of milk and the manufacture of butter and cheese in the establishments so organised into syndicates;

4. Of appointing a board of examiners for the examination of candidates for the office of inspectors, and of laying down regulations for the working of the said board;

And, whereas, there is granted to each syndicate a sum equal to half the outlay ncurred for the service of inspection and instruction organised in the syndicates,

including the salary of the inspector, his travelling expenses, and other expenses relating directly to the said service, but which sum granted must not in any case exceed $250 (two hundred and fifty dollars) for each syndicate ;

Whereas, there has been granted to the said association, besides its subsidy and other ordinary concessions, an additional sum of $1,000 (one thousand dollars), for the expenses necessary for the direction and superintendence of the syndicates, as well as for the maintenance and due working of the board of examiners above mentioned ;

The said association constitutes, as follows, the programme of the formation and working of the syndicates, of their direction and superintendence, of the manner of conducting the proceedings of the board of examiners, and of the duties of inspectors :

1

DIVISION OF THE PROVINCE.

The province shall be divided as follows, for the purpose of the new organisation :

a. Syndicates of cheese factories or of cheese-factories and creameries :

No. of Division.	Counties comprised in the division.
1	Gaspé, Bonaventure, Matane, Rimouski, Témiscouata.
2	Kamouraska, L'Islet, Montmagny, Bellechasse.
3	Dorchester, Levis, Beauce.
4	Lotbinière, Megantic, Arthabaska.
5	Nicolet, Yamaska.
6	Drummond, Richmond, Wolfe.
7	Sherbrooke, Stanstead, Compton.
8	St. Hyacinthe, Bagot, Richelieu.
9	Rouville, Iberville, St. John's.
10	Shefford, Brome, Missisquoi.
11	Vercheres, Chambly, Laprairie, Napierville.
12	Beauharnois, Chateauguay.
13	Huntingdon.
14	Saguenay, Lac St. Jean, Chicoutimi, Charlevoix.
15	Portneuf, Quebec. Montmorency.
16	Three-Rivers, Champlain, St. Maurice, Maskinongé.
17	Montcalm, Joliette, Berthier, L'Assomption.
18	Hochelaga, Jacques-Cartier, Laval, Terrebonne, Deux-Montagnes.
19	Argenteuil, Ottawa, Pontiac.
20	Vaudreuil, Soulanges.

b. Syndicates of butter-factories.

As any limitation of territory would be a hinderance to the formation of syndicates of butter factories, on account of the small number of such existing in the province, liberty may be granted them by the association to organise themselves in accordance with the following regulations; and the united counties in which such a syndicate shall have been formed shall constitute a territorial division for all the purposes of the present regulations.

II

DIRECTION AND SUPERINTENDENCE OF THE SYNDICATES.

1. The association shall direct the working of the syndicates:

a. By means of a fortnightly or monthly bulletin published during the season of manufacture, the prospectus-number of which will be published at once, and distributed among the old and new members of the association and those of the public who are interested in the dairy industry; this bulletin shall contain, especially, instruction and advice to farmers, producers of milk, patrons of factories, to inspectors and makers of cheese and butter, relating more especially to the time of year following the issue of each number; it shall also contain general information in connection with the dairy industry.

b. By means of the school factory of the association, whose work shall be conducted with a view to the new organisation.

2. The superintendence of the syndicates shall be exercised by the association:

a. Through the Inspector-general and the inspectors of the syndicates, whose duties and office will be defined hereafter;

b. Through its ordinary officers, as regards all private or public communications it may have to make to the representatives of the syndicates of the factories syndicated.

3. The association does not pretend to exercise any control over the interior management of the financial arrangements of the syndicates: it will suffice, if the latter conform to the present regulations to entitle them to be considered as having accepted the direction and superintendence of the association.

4. The direction and superintendence of the association shall be exercised with a view to securing, especially in the syndicated establishments:

a. A regular attention to the testing of the patrons' milk in order to obtain from them milk of the best quality, neither skimmed, nor watered, nor adulterated in any way;

b. A scrupulous attention to the general keeping in order of the factories, and to the maintenance of cleanliness therein;

c. Good quality and uniformity in the products manufactured;

d. A uniform system of book-keeping, sufficient to insure the exactness and integrity of the operations of the year, which each factory will have to furnish to the association.

III

ORGANISATION AND WORKING OF THE SYNDICATES.

1. A syndicate shall be constituted by the associating together of creameries, cheese-factories, other dairy establishments, to the number of not fewer than (15) fifteen, or more than (30) thirty; it shall have for its aim the diffusion over the division in which it is formed of the best methods of producing milk and of manufacturing dairy products; it may also aim at adopting and exercising all measures calculated to protect such interests of the patrons and proprietors as are to the general advancement of the dairy industry: the proprietors or representatives of the syndicated factories shall for that purpose engage to support between them, in a proportion left to their discretion, the expense of the hiring of one or more experienced inspectors, who shall superintend the production and supplying of the milk, as well as of its manufacture into cheese and butter in the syndicated factories. The inspector shall be under the direction of the Dairymen's Association, under the conditions hereinafter enumerated, and the syndicate shall conform to the present regulations.

2. The syndicates shall organise, as much as possible, by the beginning of the manufacturing season.

3. The syndicate shall organise by the signature in duplicate of the proprietors or the representatives of the factories who wish to form themselves into a syndicate to a declaration, on a printed form, which shall be furnished by the association, and a duplicate of which shall be sent without delay to the secretary of the association, who shall acknowledge its receipt.

4. In each territorial division, syndicates composed exclusively of cheese-factories or of creameries, or of creameries and cheese-factories, may be established.

5. If in any division there be not found a sufficient number of factories whose representatives desire to form a syndicate, these factories may agree with those of a neighbouring division to form a syndicate, or to become part of an already existing one.

6. Every factory shall have the right to ask for admission into the syndicate of its division.

7. Every syndicate shall have the right to prevent any factory of its division

from uniting with a syndicate of a neighbouring division, except in the case provided for by the following article.

8. For special reasons, the association shall be empowered to allow certain factories of a division to unite with the syndicate of a neighbouring division, provided that this permission hinder not the formation of a syndicate in the former division.

9. The representative of the factories associated into a syndicate shall name a president, a vice-president, and a secretary-treasurer, who shall be the officers of the syndicate, and whose address shall be given to the association; all official correspondence shall be carried out by the medium of the secretary-treasurer.

10. At the end of each season, the syndicate shall render an exact account, certified by its secretary-treasurer, of the salary paid to its inspector, his travelling and other expenses in direct relation to his duties of inspection, such as hire of carriages, railway and steamboat fares, board, stationery, postage, purchase of instruments for the inspector's use, &c., &c.

11. As the government grant is given specially for the service of inspection, this grant in no case shall exceed the half of the genuine amount of the expenses alone just mentioned, provided that half do not exceed two hundred and fifty dollars ($250.00); and the payment thereof shall only be made at the end of the dairy-season, after the report mentioned in the preceding article shall have been made to the association by the syndicate.

12. A subscription shall be paid by the proprietors, or by the representatives of each factory to the provincial Dairymen's Association, or to the dairy association of the district in which the syndicate is formed, in order that the makers or the directors may be kept *au courant* of the work of association; moreover, they shall forward to the provincial association a complete certified report of the operations of their factory according to the official form adopted by the association; which shall not be made public except by consent of those therein interested.

IV

OF THE INSPECTOR-GENERAL AND THE INSPECTORS OF SYNDICATES.

1. The Inspector-General and the inspectors of syndicates are appointed by the Lieutenant-Governor-in-Council; but in neither case will any one be appointed until he shall have previously undergone an examination sufficient to establish his qualifications before the board of examiners of the association. The Inspector-General shall be paid by the association, and other inspectors by the syndicates.

2. The duties of the inspectors belonging exclusively to the teaching of the best methods of the production of milk and its proper supply to the factories, the manufacture of dairy-products, correct accounts, and the orderly management of the

factories, these officers shall carefully avoid meddling with any troubles, with which their duties have no concern, whether they arise between neighbouring factories, between buyers and sellers, or between patrons and proprietors. They must, under pain of immediate dismissal, observe most guarded discretion in regard to all matters they note in the exercise of their duties, and reveal them to no one except to the society or to the officers and servants of the factories concerned.

§ 1. OF THE INSPECTOR-GENERAL.

1. The Inspector-General is the representative of the association accredited to the proprietors, the makers, and the representatives of the establishments under syndicates; all the instructions, therefore, he shall give, with the approbation of the association, are to be observed.

2. Before the opening of the season, or even during the season, if he see fit, or if he receive orders to that effect from the association, the Inspector-General shall call together the inspectors of syndicates, by groups, at the school-factory of the association, or at some other factory, and, keeping them there a few days, instruct them in their duties and in the best methods of manufacture.

3. After the opening of the season, the Inspector-General shall keep himself in communication with the inspectors of syndicates by going at different times to pass two or three days alternately with each of them, to ascertain the efficiency of the factories they have in charge. In these visits, the Inspector-General will not be so much bound to visit the factories in particular, as to follow the steps of the inspectors in their ordinary duties.

4. The Inspector-General shall lend his aid to the working of the school-factory, which he shall visit, taking it in turn with the syndicates.

5. The Inspector-General shall keep, in duplicate, a special note-book, in which he shall insert, day by day, all the observations he makes on the work of each of the inspectors, and on the general management of their factories; these notes shall be regularly communicated to the association, in time to be printed in each number of the bulletin, in which everything of public interest shall be inserted; the Inspector-General shall also keep a daily account of his travelling and other expenses.

6. With the consent of the association, the Inspector may visit the model establishments of this province or of Ontario, for the purpose of studying and of publishing any new process of working which may have passed into current practice.

7. At the end of the season, the Inspector-General shall prepare a complete report of his work, giving a condensed statement of the observations he has made; this report shall be in two parts; one containing matters interesting to the public, the other, private notes on the work of each of the inspectors.

§ 2. OF THE INSPECTORS OF SYNDICATES.

1. The inspectors of the syndicates are their servants, and as regards questions of interior management, such as wages, payment of expenses, &c:, are under the control of the officers of the syndicates.

2. As regards the performance of his duties, the inspector of a syndicate is under the direction of the association, and he must strictly conform to the instructions received from its officers or from the Inspector-General.

3. The wages, travelling and other expenses of the inspector are to be paid by the syndicate.

4. It is obligatory on each inspector to attend all the meetings called together by the Inspector-General.

5. After the meeting convoked by the Inspector-General before the opening of the season, the syndicate inspector shall convoke his makers in one of the earliest opened factories, and shall repeat to them all the information he has received from the Inspector-General.

6. In order to learn as soon as possible how far his makers understand their business, the inspector shall visit as quickly as possible all the factories he has in charge; this done he shall devote himself to the assistance of the least skilled makers, passing a day with each of them; later, he shall visit those whom he thinks the most skilful.

7. After having thus made himself acquainted with the situation of affairs and having helped each maker, in proportion to his needs, with his assistance and advice, the inspector shall arrange his visit so as to make a regular routine journey from factory to factory.

8. After or about the 1st June, the inspector shall so divide his work that between two visits made to the same factory no greater number of days shall elapse than there are factories in the syndicate.

9. Unless prevented by distance, communications, or other hindrances, the inspector shall be present every morning at some one factory, to receive the milk in company with the maker, and shall test samples of each patron's milk; he shall note the result of each test in a special memorandum book, which shall be preserved and handed over to the association at the end of the season; the inspector shall always have with him on his journeys good instruments for testing milk, with which the syndicate shall provide him.

10. The test of the milk, its delivery in good condition, its manufacture, the general state of the factories, the accounts, shall receive the constant attention of the inspector, that nothing in any factory be neglected or allowed to remain in arrear.

11. The inspector shall receive from the association a special note book, in which shall appear all the observations made in the course of his inspection; from it he shall extract and forward an abstract to the Inspector-General, or to any other officer who shall be indicated to him by the association, at the end of each season.

12. The inspector shall daily note down all his travelling expenses, and give in the details once a week to the secretary-treasurer of the syndicate; adding the list of factories visited, and indicating the probable route of his next week's journeys, in order that the secretary-treasurer may, if he desire it, communicate with him.

13. On pain of instant dismissal, the inspector shall communicate to nobody, unless it be to the Inspector-General or the secretary of the association, his observations on the factories and the work of the persons employed in them; still, he may, at the request of the proprietor, the maker or the president of the directors of any factory, communicate to such persons the tenor of such notes of his as concern that factory.

14. In all cases, wherein he shall see need of making observations, either to the patrons in regard to the supplying of the milk, to the maker about his work, or to the proprietor about the fittings of his factory, the inspector shall first of all address the person in fault privately, by letter or otherwise: it is only after having ascertained the existence of serious neglect, or of evident evil intention, that the inspector shall warn the parties to whom the ascertained bad state of things will cause injury. In very serious cases, the inspector shall avail himself of the advice of the Inspector-General or of the officers of the association.

15. The inspector should be deeply impressed with the importance of the most guarded discretion, not only in regard to the forgoing cases, but in all the details of his duty; a serious infraction of this rule may be punished by the withdrawal of the certificate of competence granted by the board of examiners.

V.

OF THE BOARD OF EXAMINERS.

1. The board of examiners shall be composed of three members and a secretary appointed by the board of directors at the annual convention, or about that time.

This board shall settle, and publish immediately, a programme of the examination to be passed by the candidates for the office of inspector to give them a right to a certificate of competence; it shall, at the same time, give the date and the place of the examination, and mention the references to be furnished by the candidates, and the other formalities to be gone through before admission.

3. To those who pass a satisfactory examination the board shall give a certificate of competence; this may state the degree of success obtained—pretty well, or very

well,—and it shall be either provisional or definitive; the provisional certificate will be good for only one year, and the bearer may be called upon to pass another examination, either in all the subjects of the programme, or in certain specially reserved subjects.

4. The board of examiners shall, without delay, make to the Honorable Commissioner of Agriculture and Colonisation a detailed report of the result of the examination, containing specially the names of the candidates and of those who shall have received the certificate, with the degree of success obtained.

5. Even the definitive certificate of competence may be withdrawn by the board of directors of the association from any inspector who shall be guilty of a serious breach of the rules, or who, for any grave cause, shall be considered unfitted to discharge his duties properly.

6. If the number of candidates be not sufficient to warrant the holding of the examination in more than one place, the association may, out of the funds allotted for the purposes of the syndicate, pay one half of the travelling expenses of the more distant candidates from their homes to the place of examination.

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56 VICTORIA, CHAP. 37, OTTAWA.

AN ACT TO PREVENT THE MANUFACTURE AND SALE OF FILLED OR IMITATION CHEESE, AND TO PROVIDE FOR THE BRANDING OF DAIRY PRODUCTS.

[*Assented to* 1*st April*, 1893.]

HER Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. This Act may be cited as *The Dairy Products Act*, 1893.

2. No person shall manufacture, or shall knowingly buy, sell, offer, expose or have in his possession for sale, any cheese manufactured from or by the use of skimmed milk, to which there has been added any fat which is foreign to such milk.

2. Every person who, by himself or by any other person to his knowledge, violates the provisions of this section, shall, for each offence, upon convictien thereof before any justice or justices of the peace, be liable to a fine not exceeding five hundred dollars and not less than twenty-five dollars, together with the costs of prosecution, and in default of payment of such fine and costs shall be liable to imprisonment, with or without hard labour, for a term not exceeding six months, unless such fine and the costs of enforcing it are sooner paid.

3. No person shall sell, offer, expose, or have in his possession for sale, any cheese manufactured from or by the use of milk commonly known as "skimmed milk," or milk from which cream has been removed, or milk to which skimmed milk has been added, unless the words "skim-milk cheese" are branded, marked or stamped in a legible manner upon the side of every cheese, and also upon the outside of every box or package which contains the same, in letters not less than three-quarters of an inch high and three-quarters of an inch wide.

2. No person, with intent to misrepresent or to defraud, shall remove, or in any way efface, obliterate or alter the words "skim-milk cheese" on such cheese, or on any box or package which contains the same.

3. Every person who, by himself or by any other person to his knowledge, violates any of the provisions of this sections, shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding five dollars and not less than two dollars for every such cheese, or box or package which is sold, offered, exposed or had in his possession for sale, together with the costs of prosecution, and in default of payment of such fine and costs shall be liable to imprisonment, with or without hard labour, for a term not exceeding three months, unless such fine and the costs of enforcing it are sooner paid.

4. No person shall apply any brand, stamp or mark of the word "Canadian," "Canadien" or "Canada" as a descriptive term, mark or brand upon any cheese or upon any box or package which contains cheese or butter, unless such cheese and butter have been produced in Canada.

2. No person shall knowingly sell, offer, expose or have in his possession for sale, any cheese or butter upon which or upon any box or package which contains the same, the words "Canadian," "Canadien" or "Canada" is applied as a descriptive term, mark or brand, unless such cheese and butter have been produced in Canada.

3. Every person who, by himself or by any other person to his knowledge, violates any of the provisions of this section, shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding twenty dollars and not less than five dollars for every such cheese or box or package, which is sold, offered, exposed or had in his possession for sale, together with the costs of prosecution, and in default of payment of such fine and costs shall be liable to imprisonment, with or without hard labour, for a term not exceeding three months, unless such fine and the costs of enforcing it are sooner paid.

5. No person shall sell, offer, expose or have in his possession for sale, any cheese or butter which is produced in any foreign country, unless the name of the country where such cheese or butter was produced, is branded, stamped or marked in a legible manner upon the outside of every box or package which contains the same, in letters not less than three-eights of an inch high and one-quarter of an inch wide.

2. Every person who, by himself or by any other person to his knowledge,

violates the provisions of this section shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding five dollars and not less than two dollars for every such cheese, or box or package of butter, which is sold, offered, exposed or had in his possession for sale, together with the costs of prosecution, and in default of payment of such fine and costs shall be liable to imprisonment, with or without hard labour, for a term not exceeding three months, unless such fine and the costs of enforcing it are sooner paid.

6. The person on whose behalf any cheese or butter is manufactured, sold, offered, exposed or had in possession for sale, contrary to the provisions of the foregoing sections of this Act, shall be *primâ facie* liable for the violation of any of the provisions of this Act.

7. In any complaint, information or conviction under this Act, the matter complained of may be declared, and shall be held to have arisen, within the meaning of *The Summary Convictions Act*, at the place where the cheese or butter complained of was manufactured, sold, offered, exposed or had in possession for sale.

8. No appeal shall lie from any conviction under this Act except to a superior, county, circuit or district court, or the court of the sessions of the peace, having jurisdiction where the conviction was had; and such appeal shall be brought, notice of appeal in writing given, recognisance entered into or deposit made within ten days after the date of conviction; and such appeal shall be heard, tried, adjudicated upon and decided, without the intervention of a jury, at such time and place as the court or judge hearing the same appoints, within thirty days from the conviction, unless the said court or judge extends the time for hearing and decision beyond such thirty days; and in all other respects not provided for in this Act the procedure under *The Summary Convictions Act*, so far as applicable, shall apply.

9. It shall be lawful for any person who may be charged with the enforcement of this Act to enter upon the premises of any person suspected of violating the provisions of this Act, and make an examination of cheese or butter; and any such suspected person, who obstructs or refuses to permit the making of any such examination, shall, upon conviction thereof, be liable to a penalty not exceeding five hundred dollars and not less than twenty-five dollars, together with the costs of prosecution, and in default of payment of such penalty and costs, shall be liable to imprisonment, with or without hard labor, for a term not exceeding six months, unless the said penalty and the costs of enforcing the same are sooner paid.

10. Any pecuniary penalty imposed under this Act, shall, when recovered, be payable, one half to the informant or complainant, and the other half to Her Majesty

11. The Governor in Council may make such regulations as he considers necessary in order to secure the efficient operation of this Act; and the regulations so made shall be in force from the date of their publication in the *Canada Gazette*, or from such other date as is specified in the proclamation in that behalf.

LIST OF MEMBERS OF THE ASSOCIATION

YEAR 1895.

PARISH OR P. O.	NAME.
ARGENTEUIL.	
Brownsburg	Morcy Kilborn
Carillon	Isidore Legault dit Deslauriers.
Dalesville	F. Derbyshire
Cambria	F. B. Mitts
Cushing	A. J. Kahala
Lost River	Walter Landon
Grenville	W. F. Walsh
Harrington East	G. L. McCullock
Hillhead	E. Lighthall
Lachute	William Brown
	Geo, Campbell
	Hugh McKinnon
	John Hay
	Robert McKinnon
Lakefield	Wilfrid Danis
Mabel	Walter Little
Mille Isles	F. S. Clarke
St. Andrews [East]	John Knox (2)
St. Philippe	John MacGregor
ARTHABASKA.	
Arthabaskaville	David Dumond
	Dame Vve Pellerin
St. Christophe	Arthur Leblanc
Ste. Elizabeth d'Auteuil	Joseph Boisvert
	Edouard Desfossés
St. Norbert	Alfred Ouellette
	Napoléon Tousignant
St. Patrick's Hill.	Zephirin Genest
	Philias Laroche
	Rev. V. P. Jutras
	Cyrille Lambert
	Alphonse Garneau
St. Paul de Chester	Louis Boulanger
St. Philippe de Chester	Jos. Leclerc
	Napoléon Brunelle
	Placide Le Houillier

PARISH OR P. O.	NAME.
ARTHABASKA—*Continued.*	
St. Remi de Tingwick	Jos. Proulx
	Edmond Levasseur
	Philippe Pepin (fils)
St. Valère de Bulstrode	Honorius Grenier
	Blanchett and St. Laurent
	Bergeron and Trudel
	Joseph Trudel
	Pierre Leclerc & son
	Joseph Lupien
Walker's Crossing	Adolp. St. Laurent (2)
	George Blanchette (2)
North River	Leclerc & Bro.
Stanfold	Calixte Dion
	Brissette & Beaudet
	A. Fortin
	Edmond Lord
Victoriaville	D. O. Bourbeau
	G. St. Pierre
Warwick St. Albert	Albert Lainesse
	A. M. Méthot
	David Guillemette
" St. Médard	Jules Lupien
	Dominique Babineau
	Alfred Bergeron
	Anselme Caron
BAGOT.	
Actonvale	M. McDonald, M.P.P.
	Rev. L. L. Boivin
St. Andre d'Acton	Leopold Lemire
Ste. Christine	Rev. J. Tourigny
	Jos. Dufault
	Camille Chalut
	Naud & Julien
St. Ephrem d'Upton	Delphis Chicoine
	Jean Maurice
Upton	Marc MacDuff
	André Brasseur

	Joseph Fancher
	Alfred Fancher
	Fortunat Pepin
St. Victor de Tring...	Marcellin Rodrigue
	Alexis Boucher

Parish or P. O.	Name.

BEAUCE—*Continued.*

St. Samuel	Gilbert Dallaire
	Alphonse Couture
St. Zacharie	Rev. L. R. Morrissette
St. Pierre Broughton	Arthur Mercier
	Alfred Gagné

BEAUHARNOIS.

Beauharnois	H. Roy
Landreville	William Durnin
	Thomas Durnin
	Liguori Vincent
St. Etienne	Jérémie Brosseau
	Laberge & Sauvé
	Gendron & Allard
St. Louis de Gonzague	H. Lapage
	C. Tait
	Jos. Symons
St. Stanislas	A. Leduc
St. Timothee	Rev. Aug. Martel
	A. Crevier (2)
Valleyfield	J. Poirier, son of Augustin
	Victor Pilon

BELLECHASE.

Buckland	Maximin Provost
Beaumont	Jos. Vallière
St Cajétan d'Armah	Olivier Leclerc
	Philibert Langlois
	Isabelle Protais
St Charles	Onésime Mercier
	J. B. Paquet
	Wilfrid Couture
St Gervais	Dr. P. Tanguay
	Rév. B. Richard
St Michael	Alphonse Furoy
St Raphael (Est)	Joseph Langlois
	Joachim Gauthier
	Sévérin Cinq-Mars

BERTHIER.

Berthier (junction)	J. F. Fernet
	Hormidas Brunette
	Octavien Tellier
L'Isle du Pads	Thomas Sylvestre

Parish or P. O.	Name.

BERTHIER—*Continued.*

Lanoraie	A. Ferland
	Dosithée Bonin
Lavaltrie	Alexis Mousseau
St Barthélémi	F. X. Mayer
	U Lécuyer
	Joseph Bacon
	W. Plante
	Arthur St-Piere
	Eduard Trudel
	Aquila Lefebvre
	Louis Rinville
St Cuthbert	Vve Antoine Robert
	Ulric Courchéne
	Joachim Grégoire
St Zénon	Eustache St Pierre

BONAVENTURE.

Little Cascapédia	André Cyr
	J. André Cyr
St Alexis de Ma'pédiac	Rév J. E. Pelletier
	Denis Richard
St Jean L'Evangeliste	Jean Gauthier
	Philippe Morin

BROME.

Eastman	Euclide Phaneuf
	Louis Lacaillade
Knowlton	S. A. Fisher
	H. S. Foster
Mansonville (station)	Charles Wilkins
Sutton	Albert W. Woodward.
Sutton	W. A. Martindale
St Etienne de Bolton	Ludger Bachant

CHAMBLY.

Boucherville	Rev M. J. A. Primeau
Chambly	J. Napoléon Raymond
Longueil	T. Millette (Cercle agric)
St Bruno	Napoléon Paquin

CHAMPLAIN.

Batiscan	L. P. Lacourcière
	Pierre Lapointe
Champlain	Jos. C. Félix
	Gustave Pintal

Parish or P. O.	Name.
CHAMPLAIN—*Continued.*	
Champlain	Jacques Doùtigny
N. D. du Mont Carmel	Luc Ducharme
	Oscar Lord
	Joseph Cossette
	Philippe Réault
Ste Thècle	Charles Audy
Ste Anne Lapérade	Achillée Baribault
	N. E. Clément
	J. H. Gendron
	J. A. Foley
	Michael Loranger
	Alphonse Latour
	Onésime Ricard
	Joseph Godin
	C. B. Douville
St Flore	Uldaric Leblanc
	Hilaire Lupien
	Benjamin Lavergne
	Narcisse Beaubien
St Geneviève de Batiscan	Ernest acob
	Phillippe Trudel
	Onésime Marchand
	Eugène Massicotte
St Jacques des Piles	Edmond Doucet
St Luc	Jos. O. Beaudoin
	Anselme Beaudoin
St Maurice	Oscar Nobert
	F. X. Blondin
	Ant. Laprise
St Narcisse	Isidore Derouin
	J. F. Cossette
	Dosithée Cossette
St Prosper	Alfred Trudel
	J. T. Trudel
	F. X. O. Trudel
	Désiré Cloutier
St Prosper	Henri Lacourcière
St Ubald	Alfr'd Trudel et Cie (2)
St Séverin	T. Veillet
	Narc. Bordeleau
	Majorique Bordeleau
	Epiphane Mongrain
St Stanislas	O. Trudel (fils de Michel
	Jos. L. Jacob
St Tite	Jacob et Paquin
St Tite	Marchand et Massicotte
	J. A. Lambert
	Jacob et Lacourciére

CHARLEVOIX.

Baie St Paul	Alfred Gagnon
	Charles Martel
	Joseph Fortin
	Thos Potvin (Son Nap)
	Léandre Gobeil
	Wilfrid Simard
	G. W. Gauthier, dit Larouche
	Ernest Tremblay
	Henri Côté
Les Eboulements	Jos. Bouchard
	Jos. A. Tremblay
Malbaie	Joseph Bouchard
	Jules Bradet
	Philippe Dufour
	Rev. M. Leclerc
	Odilion Pilotte
Misère	Chs. Tremblay
Ste Agnès	Treffié Bergeron
	Thos. Bouchard
St Fidèle	Jean Perron
St Hilarion	Evariste Desmeules
St Irénée	Denis Bouchard
	Emilien Tremblay
St Urbain	Charles Fortin
St Placide	Gédéon Perron
St Siméon	Rvd. M. M. P. Hudon

CHATEAUGUAY.

Aubrey	W. Currie
Chateauguay	N. R. Laberge
	P. MacFarlane
Howick	Robert Ness
	E. Barrington
North Georgetown	Etienne Marleau
	D. D. Marleau
Ormstown	W. J. Elliot
	C. Collum
	C. MacDonald
	A. S. Lloyd

Parish or P. O.	Name.
CHATEAUGUAY—*Continued.*	
Ormstown	John Gibson
	E. Hooker
Riverfield	John McGregor
Rivière des Fèves	Trefflé Lécuyer
	Alexandre Bourgerie
	Wilfrid Lavigueur
Stockwell	Rufus J. Patenaude
Russeltown	Emile Beaudin
	Narcisse Beaudin
St Chrysostôme	Rév. A. W. Seers
	J. P. Brown, M.P.
	J. P. Brown
	E. Gamelin
Ste Martine	Ed. McGowan
	Joseph Poirier
	Louis J. Primeau
	J. D. Barrington
Ste Philomène	Delphis Lacoste
	F. P. Laberge
	J. B. Damour
	Joseph Lefebvre
	Jeseph Primeau
St Urbain	J. A. Defayette
	Israel Sabourin
	Arthur Barette
CHICOUTIMI.	
Bagotville	Firmin Paradis
	Elie Tremblay
Chicoutimi	Dr. Z. E. Beauchamp
	Méridé Fortin
	Frs. Brassard
	Joseph Maltais
	Richard Gagnon
	Jean Perron
	J. D. Quay
	George Maltais
	Adélard Lavoie
	L. G. Belley, M.P.
	L. Eugène Guay & Co.
L'Anse St Jean	Zéphyrin Desgagné
	Edouard Harvey
N. D. de Laterrière	Louis Aubin
	Thomas Tremblay
	Benjamin Gaudrault

Parish or P. O.	Name.
CHICOUTIMI—*Continued.*	
N. D. de Laterrière	Alfred Tremblay
St Alexis	Rev. M. Ths. Roberge
	Willy Tremblay
St Alphonse	P. Tremblay fils de Stanislas
	Jos. Buteau
	Révd. M. Sirois
	Wilfrid Côté
	Thos. Tremblay
Ste Anne	Henri Côté
	Louis Boucher
	Ernest Gravel
St Charles Borromée	Allec Larouche
St Cyriac	Lazare Vaillancourt
St Dominique	Chs. J. B. Fortin
	Jean Girard
	Nerée Bergeron
	Pascal Bergeron
	Jos. Brassard
	D. Brassard
Sacré Cœur	Charles Lapointe
St Fulgence	Jos. Harvey
Grand Baie	Jules Gauthier
COMPTON.	
Chartierville	Onésime Tremblay
East Clifton	E. S. Lussier
	E. L. Demers
Gould	J. D. Painchaud
La Patrie	Samuel Gobeil
Martinville	L. J. Gibson
Moes River	S. Courtemanche
Paquetteville	Ludger Lazure
	Jules Adam
	Hormidas Chicoine
Perryboro	Wm. Melrose
Randboro	E. S. Lussier
Ste Edwidge	Aug. Gérin
	Louis Ladouceur
St Malo d'Auckland	Joseph Lemieux
	Joseph Roy
	Pacifique Breault
	Eugéne Beloin
Sl Romain	Cyrille Bourque
Waterville	D. S. Davignon

Parish or P. O.	Name.
DEUX MONTAGNES.	
Canuta	Alcide Renault
Oka	R. R. P. P. Trappistes
	Olivier Laurin
	G. Mivalles
	A. Laplante
	Rév. D. Jos. Lefebvre
	William Lalonde
	Raphael Charest
St Benoit	Samuel Fauteux
	Joseph Lacelle
St Canut	Ferdinand Rochon
	Joseph Cyr
	Eugene Brunet
St Eustache	O. M. Paquette
	Emile Laurin
St Hermas	B. Beauchamp, M.P.P.
	H. Pagé
	Eugène Constantin
	Félix Constantin
St Placide	Alphonse Dubreuil
Ste Scholastique	J. R. Dumoulin
DORCHESTER.	
Frampton	J. B. Blais
" West	Joseph Lacasse
St Anselme	Amédée Grégoire
	Joseph Baillargeon
Ste Claire	Georges Richard
	William Laflamme
	J. A. Cayouette
	Joseph Roy
Ste Hénédine	Gabriel Dumont
	Arthur Morin
	Octave Martineau
	Edouard Journaux
	Alfred Fortier
St Isidore	Joseph Dumas
	Joseph Guillemette
	Ferdinand Thibault
Ste Justine	Philias Tanguay
	Charles Morin
	Fortunat Chabot
St Léon de Standon	Emile Blanchette
Ste Germaine	Placide Larochelle
Ste Marguerite	Jean Boutin

Parish or P. O.	Name.
DORCHESTER—*Continued.*	
Ste Marguerite	David Cloutier
	Joseph Moore
St Odilon	Louis P. Doyon
	Linière Maheux
St Prosper	Joseph Samson
DRUMMOND.	
Drummondville	Samuel Johns
	J. A. Gosselin
	Paul Farlez
Kingsey French Vill.	J. P. Lefebvre
	T. C. Cartier
Kingsey Falls	Rév. G. E. Caron
	R. W. Leith
L'Avenir	Ephrem Charpentier
	Magloire Fleurant
	Adhémar Allard
St Cyrille de W'ndov'r	Napoléon Raymond
	Paul Valois
	Albert Jannelle
	Emile Généreux
	Albéric Mélançon
St Germ'n de Granth'm	Edouard Gagné
	Olivier Lemaire
St Guillaume d'Upton	J. B. Vignault
	Moise Héroux
	Wilfrid Théroux
South Durham	Rév. Isidore Béland
	Fulgence Préfontaine
	Henri Côté
	David Hyde
Ulverton	J. A. Dunkerley
Wickham Ouest.	Alphérie Vincent
GASPE.	
Cap Chatte	Georges Roy
Grande Riviere	Rév. C. Duret
HOCHELAGA.	
Côte St Lambert	Geo. C. Bellenger
Mile End	Rev. Frère Charest
Pointe aux Trembles	Alfred Ladouceur
	Félix Gingras
Rivière des Prairies St Joseph	Delv. Adam

Parish or P. O.	Name.

HUNTINGDON.

Anderson's Corner	Jos. Anderson
Athelstan	Jos. Stewart
Cazaville	J. J. McGibbon
	A. N. Castagnes'
Dewitville	M. McNaughton
	M. Connell
Ste Agnes	J. B. Wales
	D. E. Denneen
	D. Meade
Dundee	D. J. Fraser
Franklin Centre	R. N. Tannahill
Helena	G. Walker
	Henry Hughes
Herdmann	G. Van Camp
	A. Mac Kay
Huntingdon	Jas. Smilie
	Jas. Walsh
	A. O. Connor
	R. S. Feeny
	W. H. Walker
Kensington	A. Lennan
Kilbain	Jas. Welch
Kelso	P. H. McIntosh
	J. S. MacFarlane
	John Small
La Guerre	N. J. Barker
	J. L. McDonald
	M. Finn
Port Lewis	N. Wylie
Powerscourt	J. A. Plamondon
Rockburn	Farqhar et Olivier
St Anicet	Samuel Aubin
	N. M. Leehy
Ste Barbe	T. Daoust
Trout River	Peter Paul

IBERVILLE.

St Georges	Fromagerie de Henryville
	Oliva L'Ecuyer
St Grégoire	Michel Monat
St Jean	Jules Ménard
	André Salefranque
St Alexandre	A. Labreque
	Narcisse Brault (fils)

Parish or P. O.	Name.

IBERVILLE—*Continued.*

Ste Brigide	Osias Archambault
	Godfroy Tessier
Ste Sabine	Rév. A. V. Roy
St Sebastien	Pierre Brault (fils)
Sabrevois	S. J. Roy

JACQUES CARTIER.

Isle Bizard	Napoléon Boivin
Ste Geneviève	Urgel Lauzon
	Edouard Legault
	J. B. Méloche
	Ambroise Pilon et Frère

JOLIETTE.

Ste Elisabeth	Wilfrid Gingras
	A. H. Beaulieu
	H. Dudemaine
	Louis Trudel
	Octavien Guilbault
St Felix de Valois	Georges Asselin
	Joseph Gravel
St Jean de Matha	Joseph Clermont
Ste Mélanie	Jos. Clement
St Thomas de Joliette	Maxime Contu
	Alfred Goyette

KAMOURASKA.

Kamouraska	Cyrias Ouellet
	W. Lebel
St. Alexandre	Alexis Bélanger
Ste Anne de la Pocatière	College Ste Anne
	Fois. Gendron (fils)
	Joseph Boucher
St André	C. Alf. R. Desjardins, M.P.P
St Denis de la Bouteillerie	J. C. Chapais
	Charles Bouchard
	Joseph Dionne
Ste Hélène	Luc Bélanger
St Paschal	J. B. St Pierre
St Philippe de Nery	Thomas Leclaire

Parish or P. O.	Name.

LAC ST JEAN.

Chambord	Octave Lefrançois
	P. H. Dumais
Hebertville	J. Elisée Hudon
	P. E. Hudon
	Gonzague Girard
	Servule Tremblay
	Robert Lemay
	Clovis Lemay
Roberval	Euloge Ménard
	Rév. M. Lizotte
	Arthur W. Tremblay
	Andrew Scott
	Edouard Niquette
St Cyrille de Normandin	Chs. Peltier
St Félicien	Louis Tremblay
St Jérôme	Geo. Perron
	Chs. Simard
	Joseph Gagnon
	Rév. M. Vallée
	M. Coté et Elie Gagné
	Octave Hudon
St Prime	Adélard Perron
	John Cummins
	F. Côté et Lavoie
St Gédéon	André Bouchard
	Joseph Girard, M.P.P.

LAPRAIRIE.

St Constant	Joseph Fyfe
St Isidore	J. R. Pagé
St Jacques le Mineur	Patrick Girard

L'ASSOMPTION.

La Chesnaye (St Lin)	E. Desmarais
St Charles	François Allard
L'Assomption	I. J. A. Marsau
	Alfred Longpré
	Joseph Chevalier
	Ecole d'agriculture
St Paul l'Ermite	Samuel Chagnon
St Roch l'Achigan	J. J. Gareau
St Sulpice	Siméon Giguère
	J. Arthur Chicoine

Parish or P. O.	Name.

LAVAL.

St Vincent de Paul	Augustin Allaire
	Camille Elie Paré
	Hon. Jos. H. Bellerese
	Eudore Charbonneau
	F. X. Bastien
	Edmond Malepart
Ste Dorothée	J. Roch Couvrette
St Martin	Euclide Côte
	J. L. Allard
Ste Rose	Isaïe Ouimet
	Toussaint Dion
	Joseph Hurtubise
	O. E. Dallaire

LEVIS.

Lévis	Carrier Laine & Cie
St Etienne Lauzon	Chs. Turgeon
	Ubald Plante
St Romuald	M. Georg. St. Hilaire
St Henri	Aimé Fortier
St Joseph de Lévis	Theophile Ruel
St Lambert	Eugène Métivier
St Nicolas	Gabriel Desrocher
	J. B. Caouette
	Eugène Vézina
	Alphonse Filteau

L'ISLET.

L'Anse à Gilles	Eustache Ménard
	J. Alp. Langelier
	Eugène Métivier
St. Aubert	J. B. Daigle
	Barthélemi St Pierre
St Cyrille	Athanase Morin
	Désiré Mercier
St Eugène	François Deschènes
	Philias Kirouac
St Jean Port Joli	Edouard Vaillancourt
	Amédée Fortin
	Demétrius Lord
St Roch des Aulnaies	Joseph Emile Pelletie
	M. Aug. Pelletier
	François Costonguay
	Dolard Gendron

Parish or P. O.	Name.

L'ISLET—*Continued.*

Lotbinière	Léger Pépin
	Joseph Beaudet
	Arthur Beaudet
	Eugène Perron

LOTBINIÈRE.

St Agapit	Francis Roger
	Joseph Paquet
	Joseph Olivier
St Agathe	Octave Boulanger
St Edouard	Hyppolite Lord
Ste Emmélie	J. J. Beaudet
	Evariste Lauzé
	Philémon Bernard
St Flavien	Saul Côté
	D. U. Bernard
	Louis Bibeau
	Fulbert Garneau
St Jean des Chaillons	François Hamel
St Gilles	Rév. S. Garon
	Nazaire Demers
St. Narcisse	Onésime Farlant
	Didace Kirouac
Ste Philomène	L. P. Bourret
	Ernest Lauzé
St Louis	Adélard Plaisance
St Patrice Beaurivage	Francis Brousseau
St Sévérin	Samuel Laliberté
St Sylvestre	Siméon Maheux

MASKINONGÉ.

Maskinongé (Pont de)	J. G. Héroux
	Edelmar Voizard
Nancy	F. Dionne
St Didace	Joseph Jolette
	H. M. Maigret
St Justin	Pierre Baril
	Rév. M. D. Gérin
	Dr. C. J. Coulombe
St Léon	Roy, Boisvert et Caron
	Geo. Caron
St Paulin	Samuel Boucher
Ste Ursule	Isaac Fournier
	Joseph Grenier

Parish or P. O.	Name.

MATANE.

Causapscal	Rév. G. M. Frére
Amqui	Elie Beaupré

MÉGANTIC.

Leeds	J. G. Cummings
St Ferdinand d'Halifax	Louis Gilbert
	Oscar Gilbert
	Saul Martineau
	Zoel Lambert
	Evariste Beaupré
Sacré cœur de Marie	J. O. Hébert
	Louis Châteauneuf
	J. E. Belanger
Somerset	Napoleon Proulx

MISSISQUOI.

Abbotts Corner	E. H. Spoor
Bedford	Emilien Larocque
Béranger	Napoléon Girard
Cowansville	Arthur MacFarlane
East Dunham	C. M. Harvey
	J. G. Wales
Farnham	O. Z. Gingras
Frelighsburg	Rév. P. A. St Pierre
N. D. de Stanbridge	Ovila Courtemanche
	J. B. Brault

MONTCALM.

Rawdon	Edward Lane
	Magloire Barrette
St Alexis	O. Magnan, M.P.P.
St. Esprit	Raymond Lesage
St Jacques l'Achigan	Alfred Goyette
Ste Marie Salorné	J. Ernest Gaudet

MONTMAGNY.

Cap St Ignace	J. Eloi Jalbert
	Samuel Dugal
	Louis Gagné
	G. S. Dugal
	Joseph Gilbert

Parish or P. O.	Name.
MONTMAGNY—*Continued.*	
Isle aux Grues.....	Charles Paul Roy
	Georges Roy
	A. Jos. Roy
	Jos. Alfred Vezina
	Georges Dancosse
	Alfred Dancosse
Montmagny St Thomas.....	Frs. Joseph Proulx
	Edmond Rêmillard
	Cyrille Têtu
	Ludger Nicole
St Paul	Eugène Gourgue
St. Pierre	Octave Guimond
MONTMORENCY.	
L'Ange Gardien.....	Ed. A. Barnard
Ste Anne de Beaupre.	Cyrinus Marquis
St Ferreol	Rév. G. A. Lemieux
St. François, I. O.....	Narcisse Roberge
	Rév. J. C. D. Leclerc
St Joachim	Isidore L'Heureux
	Célestin Fortin
	David Fortin
	Hugh Brown
	Antoine Thomassin
	Jos. Noé Pépin
	Rév. Jos. G. McCrea
St Pierre, I. O.....	Liména Gauthier
St Tite des Caps	Ludger Leblond
MONTREAL.	
241 rue St Paul	Chs. Langlois
Marché Ste Anne.....	J. A. Vaillancourt
A. A. Ayer, McGill...	John H. Scott
208 McCord.....	A. Laniel
176½ St Hubert	Wilfrid Frappier
214½ Panet.....	Joseph Michaud
65, 67, 69 William st..	F. A. Dorion
63 McGill street.....	Walter E. Hannan
4031 Dorchester street.	Hon. W. Owens
66 McGill street.....	Jas. Alexander
93 St. Elizabeth street.	J. A. Harel
489 St Dominique....	Firmin Legault
190 Sanguinet.....	Isaie Renault
53 Dupré street.....	W. T. Wilkinson

Parish or P. O.	Name.
NAPIERVILLE.	
Napierville St Cyprien.	A. P. Tassé
St Michel.....	Henri Roy
St Rémi.....	Chs. Huguet Latour
NICOLET.	
Bécancourt	Gaspard Côté
Gentilly	Eusèbe Houle
	Onésime Fournier
Nicolet	Napoléon Desfossés
	Rév. M. G. Proulx
	Moïse Proulx
	Abraham Beaulac
	Narcisse Dorion
Ste Angèle de Laval..	Jos. Hébert
Ste Brigitte des Saults.	Joseph Lemire
St. Célestin	Cyrille Vigneault
	Phil. Duguay
	Lodger Piché
	Antoine Hebert
	Georges Ellison
Ste Gertrude.....	Henri Piché
	Henri Mailhot
	Noe Morrissette
	Eusèbe Houle
St Grégoire.....	Gédéon Houle
	Napoléon Ricard
	Edmond Thibodeau
	Luc Forest
	Hubert Dufresne
	Olivier Hébert
	Luc Heon
	A. E. Desautels
	Luc Thibeaudeau
St Léonard d'Astee...	Jos. Hébert
	Ernest Doucet
	Rév. M. Dauth
Ste Monique.....	Chs. Milot
	B. A. Pothier
	J. B. Beauchemin
	J. B. Duval
	Napoléon Raymond
	Joseph Descoteaux
	Syndicat de Ste Monique
	Alfred Therrien

Parish or P. O.	Name.
NICOLET—*Continued.*	
Ste Monique	J. B. Nourri
	Ernest Provencher
Ste Perpétue	Luc Girard
St Pierre les Becquets	Fred. Cinq Mars
	Alfred Naud
	Noe Mercure
	Ambroise Tousignant
Ste Sophie de Lévrard	Damase Dubuc
	Georges Barabé
St Sylvère	H. Sylvestre
	Nestor Parent
OTTAWA.	
Angers P.O	Herménégilde Boilean
	Josaphat Meilleur
Boilean	Joseph Danis
Buckingham	Geo. N. Robinson
Maniwaki	Frère J. Laporte, O.M.I
Masham Mills	Auguste Trudel
N. D. de la Salette	Rév. M. Richer
Montebello	Hurcher Huneault
	Isaïe Legris
Montpelier	L. Montpellier
Papineauville	T. Bonhomme
Poltimore	E. D. Hicks
St Amédee	Robert Robertson
St André Avellin	J. E. D. Gareau
	Jos. B. Edn. Major
	Edouard Prévost
PONTIAC.	
Calumet Island	Rév. G. A. Picotte
PORTNEUF.	
Allan's Mills	Adélard Perron
Cap Santé	J. M. Bernard
	L. P. Bernard
	Alfred Després
	Félix J. Leclerc
	Gabriel Hamel
	Alfred Trudel et Cie

Parish or P. O.	Name.
PORTNEUF—*Continued.*	
Ecureuils	Joseph Augé
	Donat Dussault
Grondiues	L. Archambault
	Emile Hamelin
Deschambault	Uldéric Benoit
	F. X. Paquin
Lachevrotiere	Gédéon Laganière
Point aux Trembles	Joseph Angers
	Philias Hardy
	G. A. Larue
	Siméon Gingras
Poirè	Aubert Bédard
	George Bédard
	Julien Hudon
	Octave Naud
Pont Rouge	Ambroise Bussières
St Alban	John Savard
	Hubert Perron
	Azarias Gignac
	Albert Naud
	Joseph Naud
	A. Baril
St Augustin	J. E. Moisan
	Phydime Rochette
Bélair	Noel Massé
St Basile	Joseph Dérome
	Rév. L. A. Gauthier
St Casimir	Majorique Lebœuf
	Roch Massicotte
	Tessier et Rivard
	J. A. Foley
	Joseph Massicotte
St Casimir	Esdras Néron
	C. Th. Lachance
	Jos. Perron
St Gilbert	M. Morrissette
	Eugène Gauthier
St Raymond	Louis Lesage
	F. C. Paré
	J. Armand Plamondon
	F. X. Proulx
St Ubalde	Maxime Hardy
	Alfred Thibault

Parish or P. O.	Name.
QUEBEC CITY.	
Rue des jar lins	Dr. J. A. Couture
Séminaire	Rév. F. C. Gagnon
P. O. B. 1040	James Geggie
111 St Pierre	L. Jos. Belleau
56 Côte Ste Geneviève	Chs. Mortureux
QUEBEC COUNTY.	
Petite Rivière	Societé de fabrication de beurre
Beauport	Jules Grenier
Charlesbourg	H. A. Jos. Giroux
Ste Foye	Joseph Blais
RICHELIEU.	
Ste Anne de Sorel	Léonidas Latraverse
St Joseph de Sorel	Théophile Beauchemin
St Louis de Bonsecours	Ant. St. Martin
	Odi. Vadeboncœur
St Marcel	Rév. J. Beaudry
	Jos. Casavant
	Albert Courchesne
St Ours	François Robillard
	Amédée Bonier
	Edouard Durocher
	Adélard Gaudette
	Honoré Chapedelaine
	Eusèbe St Germain
	Honoré Lachambre
St Roch	Donat Collette
Ste Victoire	Pierre Prosper Duffault
	P. Lataille
Sorel	Alf. D. de Grandpré
RICHMOND.	
Brompton Falls	Zoél Pellerin
	J. Léo Cayouette
Castlebar	J. E. Beauchemin
Danville	A. McCallum
Danville	Louis Lafrance
	J. T. Stockwell
Flodden	Gilbert Stalker

Parish or P. O.	Name.
RICHMOND—*Continued.*	
Flodden	Wm Stalker
Lorn	Alfred Pard
Melboro	James Dunbar
	J. A. McLeod
Melbourne	H. W. Armstrong
	H. L. Burt
Richmond	H. W. Palmer
Stoke Centre	Napoléon Lemire
	J. B. Martel
	Frs. Dubreuil
St Cyr	Ernest Ledoux
St Cyr Crossing	Joe Ledoux
	William Houle
St George de Windsor	Adélard Marcotte
	Aimé P. Morisette
	Pierre Kirouac
	Alfred N. Pinard
	Joseph Lépine
	Ozana Thibault
	Louis Lapointe
St François-Xavier	Pierre Labbé
RIMOUSKI.	
Bic	Auguste Burns
	Johnny Roy
	Adélard Blais
Cedar Hall	Rev. R. Brillant
St Fabien	Alfred Belzil
	Eugene Boucher
	Edouard Jean
	Fromagerie St Fabien
Ste Félicité	Herménégilde Gagnon
Ste Flavie	J. Chouinard
	Achille Rioux
	David Rioux
St Jean de Dieu	J. O. Massé
St Moise	Rev. E. P. Chouinard
Rimouski	Charles A. Bégin
	Désiré Bégin
	Rév. Procureur du Séminaire
	Samuel Coté
St Simon	A. A. Nicole
St Valérien	Joseph Soucy

Parish or P. O.	Name.

ROUVILLE:

St Paul	Ludger Laliberté
	Thos. Carignan
L'Ange Gardien	Napoléon Pratte
	Elie Bourbeau
	Napoléon Paquette
	Joseph Lacoste
Magenta	Henri Bonneville
Marieville	F. X. Marcoux
	Joseph Archambault
	Joseph Daudelin
Pauline	J. P. Rocheleau
N. D. de Richelieu	E. Ménard
Rougemont Station	Emile M. Dion
	C. E. Standish
	Napoleon Birtz
	A. Roy
Ste. Angèle	Jos. Beauregard
	A. Tétrault
St. Césaire	Henri Normandin
	Isidore St-Pierre
	Hormidas Langevin
	Frédéric Maynard
	J. H. Vadnais
	Louis Brodeur
	Hormidas Provost
	Simon Sénécal
St Jean-Baptiste	Oscar Chagnon
	L. Beauregard
St Mathias	Ephrem Cardinal

ST. HYACINTHE.

La Présentation	M. A. Piché
	Joseph St Pierre
St Damase	Fromagerie du Pont
	Fromagerie de Corbin
	Francis Racicot
St Denis	Lévis Phaneuf
	Hormidas Larue
St Hilaire	Albert Dumler
St Hyacinthe	Rev. M. Tétreault
	Rev. C. P. Choquette
	Emile Castel
	J. C. Desautels
	Emile Desjardins

Parish or P. O.	Name.

ST. HYACINTHE—*Continued.*

St Hyacinthe	Hon. P. B. de la Bruère
	Lambert Sarrasin
	J. de L. Taché
	Gabriel Henri
	Carl Zetterman
	Brousseau et Bergeron
	Victor Beauregard
St Judes	Pierre St Germain
	Xavier Larivière
	Aldéric Dupré
Ste Medeleine	Jos. Richer Laflèche

ST. JEAN.

Lacolle	Zephir Dupuis
L'Acadie	Joseph Deland
	Cercle agricole Ste Marguerite
St Blais	Delphis Brassard
St Jean d'Iberville	Henry Roy
St George Henryville	Oliva Lécuyer
St Valentin	J. G. Bouchard
	Alfred Nolin

ST. MAURICE.

Pointe du Lac	Jos. Ant. Garceau
St Barnabé	Edouard Paquin
	Arthur Milot
	Pierre Corriveault
	Alphonse Grenier
	Thomas Lacerte
	Philippe Gélinas
	Honoré Lamothe
St Elie de Caxton	Isaïe Dechêne
	Ludger Rivard
St Etienne des Grès	Napoléon Ringuette
	Marjorique Milette
St Maurice	Maxime Cosette
St Sévère	Eucharist Lamy
	Pierre Lacerte
	Victor Milot
	Paul Pelletier
	Alfred Ferron
Shawengan	Telesphore Pellerin

Parish or P. O.	Name.

ST. MAURICE—*Continued.*

Shawenegan	Albert Corrivault
	Zacharie Lamy
	Napoléon St Louis
Yamachiche	J. Fortunat Côté
	Hercule Bourrassa
	Arthur Duchéne
	Thomas Munier

SHEFFORD.

Bonsecours	Joseph Desmarais
	J. B. Roberge
	Alex. Gouin
	Hormidas Laplante
Dalling	L. Lawrence
Egypte	D. Chaput
Granboro	Andrew Fossey
Granby	Pierre Allard
Granby	Chas. E. Booth
	Henri Allard
	Edmond Salois
	Geo. C. Boyd
Lawrenceville	William St. François
Mawcock	J. H. Rocheleau
	M. H. Robert
Ste Cécile	Azarie Côté
Racine Ely	Pelletier et Vincelette
Roxton Pond	Denis Casaubon
Roxton Falls	Chs. Brisebois
	Louis Brazeau
	E. Larocque
	Joseph Brun
St. Joachim	Napoléon Côte
Savage's Mills	Henry Purdy
South Ely	Hiram Darby
	Modeste Choinière
West Ely	A. J. Darby
Shefford St Valérien	J. B. Dépôt
	Arthur Marsau
	Louis de Grandpré
	Maxime Robert
	Rév. F. P. Côte
Shefford Vale	Purdy et Porter
	Edward Doonan
	C. Desmarais

Parish or P. O.	Name.

SHEFFORD—*Continued.*

South Granby	James Duncan
South Roxton	Chas. Reynolds
St Anne de Stukely	J. Campbell
	Henri Pontois
	W. Stanley Purdy
Valcourt Ely	Joseph Véroneau
	Hippolyte
	Napoléon Salois
	Joseph Racicot
Waterloo	Gédéon Boulé
	W. H. Bridge
	H. W. Boire
	James Hamilton
	D. Daigneau
Warden	J. A. Lewis
	Joseph Doonan
West Shefford	Joseph Duquette
	S. Lawrence

SHERBROOKE.

Ascot Corner	Wilfrid Duplin
Sherbrooke	Pierre Bossé
	Rév. F. Venant
	Charest
	Guil. R'Haven

SOULANGES.

Côteau du Lac	Emeric Sauvé
Côteau Station	Jules Gauthier
Pont Château	J. A. Bourbonnais
Rivière Beaudette	Louis Méchot
St Clet	J. B. Marleau
St Dominique	Jules Séguin
	Em. Lécuyer
Les Cèdres	Samuel Leroux
	Hector Constant
	Rév. M. T. Chagnon
St Polycarpe	J. H. Leclair
	J. H. Gareau
St Télesphore	J. L. Chénier
	Louis Charlebois
	Rév. M. Reid

Parish or P. O.	Name.

STANSTEAD.

Barnston	J. B. Hall
Barnston, South	Geo. E. Searles
Baldwin Mills	L. E. Sutton
Cassville	A. Thompson
Coaticook	Edouard Morais
	Adélard Trudeau
	L. Lévesque
Dixville	Remick et Grady
Fitch Bay	R. E. Scott
Georgeville	Chas. Gordon Boynton
Heathton	W. W. Heath
Hatley	A. J. McKay
	J. D. Morrisson
Kingscroft	W. J. Nibloch
Magog	Jos. N. Gaudreau
Marlington	W. S. A. Buck
Massawippi	Luc. S. Colt
Minton	N. E. Fish
Oliver	G. B. Rexford
Ste Catherine	Pierre Ménard
Ste Hermenégilde	J. P. Dupuis
Smith Mills	W. Taylor
	Hébert Gay
Stanstead	P. W. Baldwin
Ways Mills	D. L. Taylor
	F. L. Brown

TÉMISCOUATA.

Fraserville	Rév. M. Ed. Poirier
L'Isle Verte	Chs. Préfontaine
	J. Jules Bélanger
	Isidore Dumont
	Alfred Paradis
Old Lake Road	F. Soucy
N. D. du Lac	Louis Gagnon
Trois Pistoles	Jos. Bellesisles
	Rév. D. Vézina
St Arsène	Joseph Fournier
	Napoléon Bérubé
	Théophile April et cie
St Eloi	C. Godbout
Ste Epiphane	Auguste Breton
St Modeste	J. Bte. Thériault

Parish or P. O.	Name.

TERREBONNE.

Piedmont St Sauveur	Grégoire Belanger
	Edmond Brosseau
	Elie Desrochers
	Albert Lessard
Terrebonne	Bruno Dazé
Ste Adèle	Edmond Longpré
	Dr. W. Grignon
Ste Agathe	Rév. S. A. Moreau
Ste Anne des Plaines	Théodule Corbeil (fils)
St Janvier	Joseph Desroches
	Xavier Sauriol
St Jovite	J. N. Geoffroi
St Jerôme	Louis Labelle
	Israël Dion
	Léandre Lauzon
	Henri Forget
	J. P. Nantel
	Eugène Taillon
	Will. H. Scott
	Joseph Laplante
	Arthur Lemay
	Wilfrid Dupuis
St Hippolyte	Napoléon Régimbal
Ste Lucie de Doncaster	Israël Thouin
Ste Marguerite	Rév. A. G. Moreau
	Legault et Daniel
	D. Chartier
Ste Thérèse de Blainville	Rév. M. Labonté
	J. B. Waddell
	Chs. D. Tylee
	Antoine Desjardins
	J. D. Leclair
	A. E. Garth

TROIS-RIVIÈRES.

Trois-Rivières	Philippe de Bellefeuille
	J. A. Milot
	C. Bellemare
Banlieue de Trois-Rivières	Hormidas Duval
	Eusèbe Girard
	Albert Bellemare

Parish or P. O.	Name
VAUDREUIL.	
Beauvoir	A. O. Roger
Hudson	W. H. Hodgson
Isle Perrot, South	Azilda Daoust
	Eustache Pelodeau
Mongenais	L. Edmond Cardinal
Pointe Fortune	A. Catanach
Rigaud	J. Eugène Séguin
	Emmanuel Chevrier
Ste Justine de Newton	Ferdinand Besner
	Napoléon Decoste
Ste Marthe	Peter Monahan
	Delphis Legault
	Rév. F. X. Sauriol
	John McManus
St Rédempteur	Geo. Valois
Séguin	Rosario Séguin
Vaudreuil	Amédée Castonguay
	Rév. J. O. Godin
	Chs. B. Brosseau
	Basile Charlebois
	Honoré Robillard
	Moïse Boyer
	Joseph Pilon
	Georges Lalonde
	Arthur Wathier
VERCHÈRES.	
Beloeil	Hertel Brosseau
Contrecœur	Régis Pelletier
St. Antoine	Ovila Bonin
	Joseph André Giard
	Clément Laviollette
Ste Julie	Rév. J. C. Daigneault
	Vertume Phaneuf
St Marc	Alexis Chicoine
	Jos. Fontaine
Ste Théodosie	Bruno Larose
Varennes	Oscar Prevost
Verchères	Jérémie Handfield
WOLFE.	
Fecteau Mills	Ludger Lavigne
	Jos. Lavertue

Parish or P. O.	Name
WOLFE—*Continued.*	
Fecteau Mills	Albert Lavigne
Ham, North	Jos. Lebouillier
	Joseph Cloutier
	Napoléon Patry
Garthby	Achille Richer
	A. A. Jacques
St Adrien	Albert Levasseur
St Hdolphe de Dudswell	Joseph Nadeau
Weedon	Joseph Fontaine
	Jérémie Fisette
	Henri Côté
	Victor Côté
Weedon Centre	Pierre J. Després
	Norbert Rondeau
Wotton	Lucien Doré
YAMASKA.	
Châtillon	Ovide Lépine
La Baie du Febvre	Thomas Lafond
	Ferdinand Vallée
	Thomas Belliale
	Ed. Z. Duguay
	J. N. Lefebvre
	J. Louis Lemire
	J. Achille Bélisle
	François Demers
	Herman Lefebvre
	Elie Proulx
	Chs. Drouin
	Uldéric Lévesque
	Nazaire Lemire
	C. B. Jutras
	Eusèbe Proulx
	Nestor Geoffroy
	Théodore Proulx
Pierreville	Elisée Parent
	Ida Niquette
	Ally. Armand
St David	D. Larivière
	Fabien Vanasse
	Chs. Cyr
	Léopold Joyal

Parish or P. O.	Name.
YAMASKA—*Continued.*	
St David	Jacob Pare
	Odilon Mélancon
	Moïse Deblois
St Elphège	William Parent
	Siméon Paquette
	Roméo Hamel
St François du Lac	F. O. Duhaime
	Elie Duhaime
	Jos. Marcotte
	Adolphe Duhaime
	J. O. Duhaime
St Michel	Thomas Delaney
St Michel	Moïse Verville
	Em. Cortier
St Thomas Pierreville	Joseph Fortin
	Napoléon Verville
St Pierre Deguire	Edmond Dauplaise
	Edouard Desfossés
	Edmond Desfossés
	Félix Desfossés
	Joseph Desfossés
St Zéphyrin	Evariste Boisvert
	Cyprien Jutras
	Herman Lefebvre
	D. J. Parent
	Alexandre Simoneau
	Adolph. H. Parent
	Joseph Letendre
	Walter Parenteau
	Zoël Smith
Yamaska	Narcisse Parenteau

Parish or P. O.	Name.
YAMASKA—*Continued.*	
Yamaska	R. P. Parenteau
	Narcisse Théroux
ONTARIO.	
Ottawa	Léon Gérin
St Anne de Prescott	Joseph Blais
	Joseph Strasbourg
Lefaivre, P.O	J. N. Bricault
Vankleek Hill	Chs. S. Bennett
New Dublin	Rodolphe Côté
Stoney Point	Rév. M. D. St Cyr
NEW-BRUNSWICK.	
Bouctouche	Onésime Kirouac
	J. F. H. Michaud
Lorette	Emile Dubois
Eel River	A. Boucher
UNITED STATES.	
Lordburg (S.D.)	Alma Landry
Blooming Grove (N. Y.)	Carl. Zettermann
FRANCE.	
St Brieuc	L'Abbé Aignel
Lisieux, Calvados	Edmond Groult
Ouilly le Vicomte, Calv.	C. Morice
Ecole de Grignon	R. Lezé

RECAPITULATION AND TOTALS BY COUNTY.

Argenteuil	20	Mégantic	10
Arthabaska	43	Missisquoi	10
Bagot	42	Montcalm	6
Beauce	63	Montmagny	17
Beauharnois	16	Montmorency	14
Bellechasse	14	Montréal	14
Berthier	19	Napierville	3
Bonaventure	6	Nicolet	50
Brome	8	Ottawa	16
Chambly	1	Pontiac	1
Champlain	53	Portneuf	50
Charlevoix	26	Québec	9
Chateauguay	36	Richelieu	18
Chicoutimi	40	Richmond	28
Compton	20	Rimouski	20
Deux Montagnes	21	Rouville	29
Dorchester	27	St Hyacinthe	24
Drummond	26	St Jean	8
Gaspé	2	St Maurice	26
Hochelaga	5	Shefford	53
Huntingdon	35	Sherbrooke	4
Iberville	12	Soulanges	16
Jacques Cartier	5	Stanstead	26
Joliette	11	Témiscouata	15
Kamouraska	13	Terrebonne	33
Lac St Jean	26	Trois-Rivières	6
Laprairie	3	Vaudreuil	25
L'Assomption	10	Verchères	12
Laval	13	Wolfe	17
Lévis	11	Yamaska	59
L'Islet	20	Ontario	7
Lotbinière	23	Nouveau-Brunswick	4
Maskinongé	13	Etats-Unis	2
Matane	2	France	4
			1,324

REPORT "IN EXTENSO"

OF THE

FOURTEENTH ANNUAL CONVENTION

OF THE

DAIRYMEN'S ASSOCIATION

OF THE PROVINCE OF QUEBEC

HELD AT WATERLOO, DECEMBER 3RD, 4TH AND 5TH, 1895.

On Tuesday, December 3rd, 1895, at 2.30 p.m., the Rev. T. Montminy, President of the Association declared the Convention open.

THE PRESIDENT,— Gentlemen, in opening the 14th Convention of the Dairymen's Association, I have a special invitation to address to those delegates who are present for the first time at our function. Those who attend regularly know its importance and are aware that every individual is invited to take his part in it, either by putting questions to the lecturer, or by submitting his doubts and difficulties to the meeting; that we are always happy to extend every possible latitude to those who do us the honour to accept our invitation. We were formerly blamed for allowing all the time of our meetings to slip away in lectures and addresses; those, people said, who wanted to ask for information on important matters had no opportunity of speaking, and it is for the purpose of redressing these complaints that for several years, and again this year, we specially invite to take part in the discussion those who have never been present at our meetings: farmers as well as the makers of butter or cheese. Such questions, or objections, are an excellent method of imparting animation to our sessions; but however lively they may be desired to be, the discussions should never exceed the limits of kindly feeling. If, in the course of discussion, a spark threatens to set off the powder, do not forget that we have an aqueduct here, and that the firemen are ready on the first signal to run and moderate the enthusiasm.

Do not scruple about asking questions; that is what you are here to do; a

question-box is there before me, in which the bashful may put their questions in writing.

OUR LABOURS BEGIN BY THE APPOINTMENT OF COMMITTEES.

M. Chapais tells me that there are many English-speaking people present, and as it was announced that part of our programme would be gone through in the English language, such persons would probably like to understand our method of procedure; Mr. Barnard would, perhaps, be good enough to explain this to them in their own language.

Mr. Barnard (in English)—Gentlemen, you are all invited to take part in the discussions that follow the lectures. Moreover, you are requested to prepare questions or objections to be submitted to the lecturer, verbally or in writing, so that we may have animated discussions on the interests pertaining to this industry of ours. The nomination of the committees will take place at once.

NOMINATION OF THE COMMITTEES.

Mr. Barnard, moved, seconded by M. Chapais, and the convention decided unanimously:

That Messrs. W. H. Walker, Robert Ness, and D. L. Bourbeau, be on the committee for the examination of samples of silage;

And that the committee for the examination of apparatus, &c., of the dairy, presented to the convention, be composed of Messrs. Alexis Chicoine, Peter MacFarlane and Elie Bourbeau.

M. J. C. Chapais.—Mr. President. up to the present time we have proceeded directly, in our public sessions, to the election of officers and directors. Now, I have been present at several similar meetings in the States and in the other provinces of the Dominion, and I have remarked that these elections are always conducted on the report of a committee called "The Committee of Nomination," selected from the outgoing directors of the society.[1] It has been suggested to me that it would be well for us to proceed henceforward in this fashion, and I have the honour to submit this proposal to the meeting.

Mr. Barnard translated M. Chapais' remarks into English, and added:

I have learned, from long experience, that this plan has its advantages; among others, that of ensuring the nomination of directors thoroughly acquainted with the interests of their districts, by their selection by a committee likely, as our officers and directors are, to be well informed as to the qualifications of men as regards their power of serving the interests of the Society. If you have have no objection to the proposition of M. Chapais, if it is carried, I shall be happy to submit to you some names which, in my opinion, ought indisputably to have a place in this committee of nomination.

[1] "Bureau Sortant" means those of the directors whose term of office expires.—A. R. J. F.

Dr. Grignon.—Will the candidates mentioned by this committee be definitely appointed ?

Mr. Barnard.—Yes, after the selection has been ratified by the convention. In the societies that I am acquainted with, and at the meetings I have attended, and I have attended many, this plan has always given complete satisfaction.

The motion was carried *nem. con.*

REPORT OF M. EMILE BOURBEAU,

Assistant Inspector-General of Syndicates.

To the Members of the Board of Directors of the Dairymen's Association of the Province of Quebec :

GENTLEMEN,—I have the honour to submit to you my second annual report as Asst. Inspector-general of the syndicates of creameries and cheeseries.

I began my tour through the syndicates on May 11th, and my last visit was paid on the 11th October. Like last year, Mr. Macfarlane decided not to divide the province, so that I had to travel through all the districts in which syndicates subsisted. I must tell you at once that I did not find so much improvement as last season's work led me to expect. In consulting my notes of last year, as well as the reports of my predecessors, I find that it is the same kind of faults, almost invariably, that we have to denounce to you. Doubtless, we are not absolutely standing still in our manufacture of butter and cheese; our makers, generally speaking, are doing better, and know their work better, than they did a few years ago. Whence comes it that the progress is so slow, and that year after year we have the same faults to find? There are different causes for this state of things, one of which seems especially serious, and I feel that I must once more call your attention to it. There are a great deal too many small factories in the province. I seem to hear you say : "But we know that as well as you." I admit that this complaint has been frequently, too frequently, brought forward already, and if I mention it again it is because I consider that it is urgently necessary to find a remedy for it: the interests of our dairy business is at stake. The overcrowding of the market, of which we felt the ill effects last summer, makes this evil still more serious; wherefore, I entreat you, gentlemen, to take, without delay, the necessary measures for its suppression, Unless this is done, the cheese of this province, whose reputation is only just now being established in some parts of England, will certainly be one of the first to be

rejected by the dealers. We must not forget Bristol and its prejudice against "French cheese." Neither must we overlook the fact that it was from delivering on the English market an inferior article, more or less adulterated, that our neighbors in the States lost their customers; and, if we want to keep ours, we must cease to make that sort of cheese which is rather a disgrace than a credit to us.

In this crowded meeting there may perchance be some proprietors of small factories. They will know what we mean by small factories. We are not speaking of those new establishments set up in new districts to help the settlers. No, by *small factories* we mean especially those that have been built for the purpose of injuring a prosperous factory already existing, and which can only succeed by ruining some one or another, and which, in other terms, convert one successful factory into two unprosperous ones. This division of districts being acknowledged to be an evil injurious to the general interests, why not seek to cure it by acting in a contrary sense? If the division causes the evil, union must be the cure. Let two or three small factories agree to unite and form one. With a little good feeling, this is not so difficult as it is usually supposed to be. Our neighbors in Ontario have put it into practice already, and now they can boast of their great factories, well fitted up and supplied with good makers. It is to this that they justly attribute the superiority of their cheese, or, at least, of the price they get for it.

But, you will say, it is possible to make good cheese with but a small quantity of milk. No doubt; but for that three things are requisite—a good maker, good milk and a good establishment. Do you really believe that these three things are often to be met with together in the "small factories?" If you hold that opinion, I shall be obliged to contradict you, from what I have seen during my two summers' tours through the province. A good maker implies a good salary. A small factory cannot afford that; neither can it afford a properly fitted up establishment, without which the expenditure would consume the entire income. Again, in such a state of things, could good milk be expected? Yes, doubtless, good milk is sometimes to be found in small factories, but they are much more likely to get bad milk than are the larger factories, since, having only enough patrons to keep the thing going, the maker hardly dare refuse a can of bad milk. A can of bad milk in a *large* vat is not much approved of by us makers, but a can of bad milk in a *small* vat is enough to spoil the whole batch and make the turnout of a good merchantable article impossible.

And this is not all. These small factories, so close together, are also the cause that in this province there is a great deal too much bad milk at the cheeseries, since for one of them that has the pluck to refuse all the bad milk offered, there are ten that will accept it without hesitation.

And it is not surprising that, under such circumstances, we have still on our markets a largish quantity of bad cheese, particularly of "off-flavour" cheese.

And à propos of this, I will point out another cause of defects in our cheese—the way the makers neglect to clean out the whey-vats. To notice only one case: I

was called in, this summer, to a cheesery where the maker had just had to submit, in three successive sales, to a depreciation of 1¼ cents a pound on account of a *fault in the flavour.*

Whence did this fault arise? Chiefly because the whey-vat had not been washed out for several years, if the eye and the nose be any judge. I made the maker clean the vat thoroughly, and he has not lost a cent since. I cannot insist too strongly on this point; for, if the patrons of a cheesery carry back rotten milk in their cans, and only one of them forgets to wash his out before the evening's milking (which happens oftener than it should), it is utterly impossible for that patron to send in good milk the next day, and consequently it is impossible for the maker to turn out good cheese. That is the reason why we so pressingly beg the makers not to accept bad milk; to keep all their utensils in good order and perfect cleanliness, and above all not to omit washing out their whey-vats at least twice a week. If these precautions be observed, the quantity of "off-flavour" cheese will assuredly greatly diminish.

In my journeys through the syndicates, with the local inspectors, I visited 288 factories that I classify thus: 1st class, 131; 2nd class, 130; 3rd class, 27. In these, I examined 24,222 cheeses, of which there were 10,417 1st class, 11,655 second class, and 2141 3rd class. As the number of inferior cheeses is rather large, I think it right to explain the reason. It appears larger than in former years, and for the following reasons: 1. I thought it right to put all cracked cheeses in the second class, even when their insides were of good quality; 2. We had this year ten new syndicates, and it is not easy for an inspector the first year to arrive at once at perfect results; lastly, this extra number of inferior cheeses was still more increased by the fact that, during my visits in August, I found in the factories the cheese of the whole month of July unsold, and even some made in the last fortnight of June. A great deal of this cheese had been well made, but it had lost much by being kept such a time in factories that, generally speaking, are by no means fit for keeping cheese so long.

Judging from the figures I have just set before you, you might be tempted to think that the inspectors do not answer the purpose the Society intended them to fulfil, but, in my opinion it is not so. I beg you on the contrary to observe that circumstances are sometimes very much against them. You may judge yourselves. We have syndicates that work famously, and give excellent results, in proof of which take the syndicates that at the last Montreal Exhibition obtained, with 22 and 24 factories (*each?*), 95 and 94 marks out of a hundred, on the average. A good average, too, you will say; others were not so successful. True enough, but these inspectors were, chiefly, those who had among their factories many small ones. These small factories manage to exploit the syndicate-work against us in this way under the pretence that they will belong to a syndicate, they do not hesitate to engage young inexperienced makers, reckoning upon the inspectors teaching them their business. You will agree with me that it is to ask a great deal of our inspector to expect him, in five or six lessons, a month apart, to transform an apprentice into

an expert, able to do him credit in an Exhibition like that of Montreal this September. Many people were surprised to see there cheese inferior to that expected from certain renowned inspectors. After what I have said, I trust, gentlemen, you will no longer be astonished.

The whole respectfully submitted.

ELIE BOURBEAU,

Asst. Inspector General.

At the end of the report M. Bourbeau continued :—Gentlemen, up to last year, provided the inside of a cheese was good, it passed as a cheese of the first quality; but this year, the dealers decided to lower the price of cracked cheese by half a cent a pound; so that this sort, even though well made, has to be classified as second quality. I examined some cheeses of this stamp, and I found, in one factory, as many as 600 of them. You see that this has increased considerably the proportion of cheeses of the second quality made this season.

The President.—If you have any questions or objections to lay before M. Bourbeau, he is at your service.

Mr. Barnard.—I understand, from what M. Bourbeau said, that there was some cheese so inferior in quality that the price was cut down by 1¼ cent a pound.

M. E. Bourbeau.—I saw some cheese that was worth even less than that. We find every season cheese that is worth from 1¼ to 2 cents a pound less than the finest quality of cheese. I did not found my statement on the average market price, but on the price of the best cheese. My impression was drawn between the best and the worst qualities.

Mr. Barnard.—On the Montreal market?

M. Bourbeau.—Yes.

Mr. Barnard.—Do you think that the Montreal market gives for our cheese a price equal to its value according to the real market rate?

M. Bourbeau.—It is very difficult to say positively, because, as a rule, each seller keeps his deals secret. For my part, I truly believe that enough difference is not made between good and bad cheese, and hundreds of times, in reply to my remarks about cheese, I have been told: "We are selling at the same price as others." I have even been shown reports, that certified that cheese that I had classified as *inferior*, had been sold and accepted as *good* cheese; and yet, this cheese was certainly worth 1½ cent less than ordinary cheese.

Mr. Barnard (In English)—The question is important; it concerns the difference in price between good and bad cheese. In his report, M. Bourbeau says, that, in

some cases, the difference might be 1¼ cent. As the question interests all of us, M. Bourbeau will perhaps be good enough to reply in both languages, and he would like the discussion to be held in English and in French.

The Rev. Abbé Montminy.—I think that one of the best means of improving our cheese would be to make an emphatic difference in the prices. If the buyer to-day pays 8 cents for inferior cheese, he tries to get good cheese at the same rate, so makers are not stimulated to improve their manufacture; if, on the contrary, he paid at one factory 8 cents for inferior cheese, and, at the next 10 cents for good, there is no doubt that he who had made the bad, would take pains to make better in future. However, I think that if a certain price is paid in a district, every one has to take the same. It would therefore be a good thing for the makers of a district to come to an understanding on the point.

Mr. Barnard.—I have too often heard of this difficulty, viz., that of finding out the real price paid for our best cheese, while we far more easily get at the price of common qualities; and that in general, the average difference between good cheese and cheese that must be sold at what it will fetch, is only a quarter cent.

My friend, M Guay, will tell you to-morrow the difference that obtains in Chicoutimi. It is a very distant place, Chicoutimi, but still we have something to learn from it. I think you will be surprised to hear at what good prices they sell their cheese there, that they export it to England, and that they make a difference of as much as 1½ cent between good and bad cheese. M. Bourbeau can, perhaps, throw some light on this point.

M. E. Bourbeau.—I said before that the dealers do not make difference enough between good and bad cheese; and I will add, in reply to Mr. Barnard, that an agent once told me that he had orders from his firm at Montreal, never to exceed the limit of a quarter cent, as the difference between good and bad cheese. This, he said, was the rule of his firm. I do not know if others do the same thing.

M. O. V. Bourbeau.—In Arthabaska County, where I live, my experience of the sale of cheese is that the buyers do not make so great a difference between the price of good and bad cheese as that just mentioned. There ought to be more difference than that in the prices of the different qualities of cheese. Looking at the price of the best quality of cheese in Britain, which, last season, was at least half a cent more than was paid here for the best Quebec cheese, we must arrive, in my opinion, at this conclusion, namely, that in only making a quarter cent difference between good and bad cheese in the rural parts of this province, as long as they can do business in this fashion there, and make a profit, the buyers do not care much about the consequences. They always pay less for our good cheese than for good Ontario cheese; and it is clear to us that they pay less than its value for our good cheese, while they pay in excess of its value for cheese of inferior class.

M. Charles Thibault.—I beg leave, Mr. President, to ask a question: I have the two.fold advantage of being a practising lawyer and a farmer, and as a lawyer, I

often receive *complaints* from the makers and the patrons of factories. They say: Cannot you show us how to escape being robbed in future? An agent arrives and offers us so much for our cheese; it is weighed and sent to Montreal where it is found not to weigh so much. Why does it weigh less in Montreal than it weighed at home? We are robbed on all sides; and if we refuse this money sent us for our cheese, then come lawsuits and endless trouble. Is there any way to remedy these troubles?

M. E. Bourbeau.—As to the weighing, that is generally fair enough; but the only way to avoid all difficulty is to sell the cheese "delivered at the factory." Otherwise, when trouble arises, if the dealer finds fault with the weigher or with other things, he says to the seller: "You will have so much for your cheese." If this is not accepted, he adds: "If you like, you can fetch away your cheese; we cannot pay you any more for it."

M. Chapais.—We have for the last nine years followed this plan; our cheese is all sold "delivered at the factory," and we are quite satisfied with the system.

M. Castel.—I do not think that the makers who complained to M. Thibault can form part of the syndicate of factories No. 2 in the County of Shefford, and, consequently, they do not enjoy the advantages belonging to the system of selling for delivery at the factory. Mr. Parmalee, the secretary of that syndicate, is not here at present, and therefore cannot tell us; but I think, from the report that I hold in my hand, that this way of selling cheese, "subject to inspection at the factory," is in force generally in twenty or more factories of the No. 2 syndicate of Shefford County, and there gives perfect satisfaction. The few still unsyndicated factories in Brome and Shefford will soon, I am told, unite with this part of the district. As to the other part, the cheese is sold to the Cowansville Chamber of Commerce, and I believe the members of that Chamber have also taken steps to secure inspection at the factory.

M. Poulin.—I have followed with much interest the reading of M. Bourbeau's report, and I think that I understand that his work as inspector does not solely consist in examining the quality of the cheese and detecting its defects. I believe that were the inspectors to show the makers how to work, or to work at making cheese themselves at the factories, instead of passing their time in testing for the purpose of finding fault; if, in a word, they applied themselves to the showing how to make good cheese, the factories would be much benefited by it, and so would our goods be; it is an elementary part of the business, it would be the most natural thing to do, and it would be the most beneficial thing to the dairy trade. For many years the Dairymen's Association has been making immense progress, and that by teaching how to make cheese, and good cheese, too; but I hold that it has failed in its mission lately, because it has not tried to kill the evil in its infancy. The inspectors point out the faults of the cheese when made, but they ought to devote themselves to the teaching of how good cheese should be made. In the townships,

both good and bad cheese is made, and what is the reason ? It was the same man from who made it, and he treated all his milk in the same way. Why was the cheese one vat good, and in another vat bad ? It was discovered later that the rennet was in fault. The most important of all things in cheese-making is the rennet We have had bad rennet, and nine times out of ten, when cheese turns out badly, it is due to the rennet. Bad rennet will curdle milk as well as good. Such cheese, made with bad rennet, will preserve its consistency for nine or ten days, and then it will "cave in." You then taste it, the flavour is bad; the inspector may think that is due to whey, beyond the limits of the factory, when he inspects the cheese, but in more than one case, it has been found to be due to bad rennet. To get hold of the control of the rennet, no bottle of it should leave the shop for the factory without first having previously received the *cachet* of the Dairymen's Association or of the Government. By this, I believe that an improvement in the quality of the cheese would be ensured.

M. E. Bourbeau.—The gentleman who has just spoken does not seem to me to be *au fait* of the labours and objects of this Association. He does not know what takes place in the factories under its control; but if he would take the trouble to enquire, he would find that we have this year thirty-eight syndicates, with thirty-eight inspectors at their head, all under the direction of the Inspector-General and his assistant. The report you have just heard read is that of the Assistant Inspector. It is my duty to look after the local inspectors, of whom there are thirty-eight, charged with the duty of receiving the milk, testing it, and making cheese. If you will turn over the leaves of the reports of the Society, you will find, M. Poulin, that the inspectors are required to make cheese with the maker, and this I have often done.

M. Poulin.—My suggestion is that the Society ought to have control of the rennet and should appoint a special inspector, in order that no rennet should be received by the makers until it had been passed as good. I do not accuse any one of having failed in his duty. The inspector himself does not know what goes on, neither does he know whether the rennet is good or bad. And he is not a chemist. But what I wish, and I wish to be well understood, is to suggest to the Association, or to the Government, that they take the rennet under their control; that it be inspected by a man appointed for the purpose, and that not a single bottle of rennet be allowed to reach the hands of the makers till it has received the approval of the Association or of the Government.

M. D. V. Bourbeau.—It is always pleasant, Mr. President, to listen to suggestions such as have just been made. Mr. Poulin says that at his factory the fault lies with the rennet. That is the case sometimes; it also happens occasionally that the faults are due to the whey-vat, in the bad management of the factory, and sometimes even in the milk itself. There are faults on all sides, we are all full of faults, always excepting Monsieur, the Assistant Inspector-General. I do not know of many faults that he has, and I like to brag about him, perhaps because he bears the same name

that I bear. Anyhow, I can bear witness to this: he came into our county to find out what our inspectors were doing, and I believe he succeeded in his quest. He saw, and can say, if our inspectors were careless or attentive to their duties in connection with the different factories under their control; if they did or did not do their duty. I have seen M. Bourbeau at work, I have seen him make cheese himself, although he was not obliged to do it, and no better cheese was ever made in our factory than the cheese he himself made there.

M. J. de L. Taché.—As a proprietor of creameries, I have observed that care is taken at all the *creameries* of the province to pour the skim milk into a tin vat before its distribution to the patrons, while in the very great majority of *cheeseries* there is only a wooden tub to hold it.

M. E. Bourbeau.—It is difficult to say why this should be so. My vat is of tin. When men begin to see the real value of whey, more care will be taken of it.

I think it is very difficult to keep a wooden tub clean; tin is easily washed, and I observe that in the best factories in the province the vats are of tin: they ought to be universally made of that metal.

A maker came one day and asked our secretary to send me to his cheesery to see why some sales of his cheese had been cut down in price. I went thither, examined his cheese, and told him at once that the fault lay in his whey-vat. We went and looked at it: it was not a pleasant sight, and the smell was not by any means agreeable. There were four inches of rotten, clotted milk at the bottom, that had been there for I know not how long. It was late when I got there, so I could only had give him a little advice. I made him clean out the vat, and since then he has not lost a cent. People, generally, do not look after the whey-vat enough. The patrons especially should see that it is cleaned out frequently. But they ought also to look after their cans; if these are not well washed out, they become tainted, and the milk reaches the cheesery in bad condition.

M. D. V. Bourbeau.—In replying to Mr. Poulin, I forgot to relate to him, and to the meeting as well, how we, at our cheesery, manage to get good rennet, good wrappers, good wood for the boxes, good colouring, and good salt. We formed our syndicate, and at our meetings, in March, we invited the factory owners to join together, and this arranged, at the same time as we engaged our inspector for the superintendence of the factories during the season, we engaged a competent person to buy, wholesale, all things necessary for the factories in the syndicate. Charged with this duty, our agent bought for all the factories. Instead of buying salt by the ten or twenty barrels, he bought four or five hundred barrels, and paid four, five, and six cents less per barrel. The calico and the rennet were bought wholesale, and cost much less in consequence. The buyer being a good judge, he can decide as to the quality of the goods, and the syndicate may be sure of having good calico, good salt, good rennet, good colouring, and wood to turn out good boxes. We secured these things for our two syndicates, and all have been equally benefited, and all the goods

needed for cheese making turned out of good quality, cost the members of the syndicate much less, and we thus secured a better quality in our cheese as well as greater uniformity.

Mr. Walker (in English).—I should like to ask Mr. Inspector a question. During the last three seasons that I have worked my factory by the system of paying for milk according to its richness, our patrons take much better care of the milk; there is much less gas in the whey[1]; they do their best to prevent the cream rising in the evening's milk, by stirring it properly. Do you not think that this method is a good one?

M. E. Bourbeau.—Yes, I do think so. If the milk were better looked after the makers would have much less trouble in making good cheese. If the patrons could be convinced of that they would take more care of the milk. We know that in some districts the increase of care has improved the quality of the cheese, while at the same time the mode of payment led to an increase in the quantity of fat, thus making the milk richer: two great advantages.

An Unknown.—Would it not be as well for the Dairymen's Association to adopt some plan to make the Babcock test general throughout the country?

M. E. Bourbeau.—We have discussed it in the Dairy School. Every pupil there learns to use the Babcock in testing milk, and we recommend the paying for milk according to its richness. But, naturally, we do not advise any patron to introduce it against the wishes of his patrons. I think it is the patrons, above all men, who are opposed to the system. The makers would willingly take it up if the patrons would consent. Why the farmers object to it I cannot see, for it is fair and does justice to every one.

Mr. Macfarlane (in English).—Last year, 34 factories paid for their milk after this system; this year there are double the number, and the future promises a great deal of progress in this matter, so that there is no reason to be too pressing as regards this business.

Mr Walker.—Some syndicates have refused to pay for milk according to its richness. Meetings have been held and reports made against the plan. If we could only introduce it into each of the syndicates, it would not be long before the practice became general. But so long as the agreement is not general, so long as people are not in accord to bring about that which is best for all, it will be difficult to render the practice universal.

M. E. Bourbeau.—Having just answered the questions about the payment for milk according to its richness. I will now revert to the question of small factories. You have, perhaps, come to the conclusion that I am opposed to small factories: you are right. In these, we find men who are not even able to distinguish good milk from bad, and cannot, in consequence, apply the plan of paying for milk in

[1] *Petit lait* in the original, but *curd* may be meant. A. R. J. F.

accordance with its quality, as they do not know how to test it. The small quantity of cheese made will not admit of the proprietor paying the maker the fair salary of a competent man. And it is not fair to expect the inspector to do the work of testing; for, above all things, his duty is to look after the making of the cheese, and not after the way in which the milk is paid for. The syndicate, then, must engage a man to make the test and the dividends; for, if the inspector is overburdened with work, he will at last refuse to attend to the making and restrict himself to the testing of the milk.

M. D. V. Bourbeau.—I have studied this question for some years, and I have decided that it is impossible to do justice to the patrons, by paying for milk by the hundred pounds. To act fairly by all, it must be paid for without exception according to its richness. At every division of profits, we find that some of the milk is worth from 10 to 15 cents less than other milk at the same division, because there is some milk that tests 4½ p. c. of fat, and other milk that tests only 3¼ to 3½ p. c. The greater the difference in the quality, the greater is the difference when the payment is made. And so, for those who have at heart the welfare of dairying in their districts, who wish to deal equitably towards their neighbours as well as to be justly treated themselves; lastly, for those who are upright and respectable, for the farmers who aim, in caring for their milk, at supplying the best of food and pasture to their cows; let these men insist upon milk being paid for according to quality. If that is not done at their factories, they are simply paying part of what is their own due to the careless patrons of the same factories.

M. Trudel.—And as to the whey, would it not be better to boil it before vatting it?

M. E. Bourbeau.—Though I cannot speak from experience, I think it would be a good thing.

M; Trudel.—Could it not be put into a boiler and done by a steam injector?

Mr. Wm. R. Haven.—The steam must not come into direct contact with it, for that would cook it.

M. E. Bourbeau.—In that case, it would not be practicable. For my part, I have never boiled whey.

REPORT OF MR. PETER MACFARLANE.

Inspector-General of Syndicates.

To the President and Directors of the Dairymen's Association of the Province of Quebec.

GENTLEMEN,—I have the honour to submit to you my fourth annual report as Inspector-General of Syndicates for the season 1895.

I began my labours on the 1st of last May by holding, in the counties of Chicoutimi and Lake St. John, a travelling dairy in four places, two in Lake St.

John and two in Chicoutimi. I had, in all, more than 80 makers and apprentices as pupils.

But, it will be said, why did they not go to our school at St. Hyacinthe? For a very good reason, there was no room for them there. Many seeking admission had been necessarily refused. It has since been enlarged, and the staff increased; there will be more room, but, nevertheless, I am still afraid that there will not be sufficient accommodation from now to next spring, so that I advise all those who wish to attend next winter to enter their names as early as possible.

The number of the syndicate has increased very perceptibly this year. There are ten more than last year. If we go on at the same pace for a year or two, the greater part of the province will be covered with syndicates, a most desirable thing. We had, last year, 3 butter syndicates, and 35 cheesery syndicates, *i.e.* about 780 inspected factories, or only about one-half of the factories in the province. We must, then, still push away at the wheel, until we get the chariot of progress as far as the utmost confines of the province, so that all the benefits of inspection shall reach them.

In all, I visited 360 factories, some of them twice. I examined 30,201 cheeses and 1,407 tubs of butter. Of cheeses, I found 5,984 inferior, or about $\frac{1}{4}$ of the whole, while of butter, there were only 14 tubs of inferior quality. Why is there so much inferior cheese? Doubtless, from carelessness, cheese sold so badly this summer that many patrons said to themselves:—Its not worth while bothering oneself about the milk, with such price; so they did not aërate their milk; again, because of the long drought, the poor cows had to drink water utterly unsuitable to them, and to eat any weed that came in their way.

We have had, then, a number of circumstances that all tend to the same results. There are not yet many patrons who profit by the advice given them to sow green-fodder crops for their cows. This season they have had a good lesson, and it is to be hoped that most of them will remember it next spring.

If a maker is to turn out good cheese, he must have sound milk, free from all bad smell, and it is only from cows that are fed on good food and drink good water that can produce good milk. This is a most desirable end to attain. Let us unite our efforts, patrons, makers, inspectors, to attain it.

The exports of cheese in 1895 are about the same as last year, while in the butter exports there is a perceptible increase, though not yet quite as we could wish, not even half of what was expected 15 years ago. Still we shall get back to that rate. The quality of our shipments of butter has decidedly improved, but I wish I could say the same of our cheese. The total cash received for butter and cheese is less than the average of the last three years; indeed, the price of cheese had not been so low for ten years, the only year in which the price was so low being 1886, which really gave an average of at least a cent lower. Still, there is a future for cheese, in spite of the present low price, if one looks at the price of other comestibles. Cheese is cheap and the consumption is good, so that better prices may be looked for

next year. Butter, in the early season, sold very badly, but the price was much better at the end of the summer. Some of it was sent, fresh made, to England, and the people of the United Kingdom know now that we can turn out good butter. Our conquering a prejudice was a difficult thing to do. I do not think "prejudice" is too harsh a word to employ, for many English people used to think, and many still think, that our butter is not fit for the table, but we must not be discouraged; let us work away until they learn that we can make as good butter as any people. At the Montreal show Mr. Perlee was very much pleased with the improvement in the quality of our butter since the Chicago exhibition. As to our cheese, at the same Montreal show, we doubtless had some as good as that at Chicago, but we had some worse, and some very much worse. The competition was between our syndicates, and the Exhibition Company had laid down the rule that the cheese shown must have been made between the 1st and the 15th of August, so that when the show opened a great many of the cheese were six weeks old. Every one knows that the greater number of factories of the province are not so constructed as to be able to keep the cheese so long as that, however well made they may be. In the other classes the cheese might have been made up to August 25th. Why these two weights and measures in neighboring competitions? I had rather that both should have been treated alike. Our inspectors, being obliged to see that the whole of each one's syndicate was represented, sent all their cheese, and consequently we had a great deal that was "off-flavour." No date was fixed for the making of the butter exhibited. Why not have treated the cheese makers in the same way? Give every one a chance to send their best goods, or fix a positive date, common to all, for one make. But this is a matter for arrangement with the Exhibition Company, and not with this convention.

About 100 factories this year have paid for milk by the Babcock test of quality, a marked progress since last season. Shefford is at the head of all the counties, with about 25 factories, having adopted this way of payment. Let us continue to recommend it until it has become the universal rule and all upright people have the atisfaction of seeing the advanced step in the road of progress accomplished.

I am waiting for the separate reports of our local inspectors, and shall annex them, when received, to our annual report. Up to the present time very few have reached me. However, I hope the delinquents will shortly send them to me. If the secretaries of the factories will not send their factory reports to their inspector he cannot send his report to me, and I myself am obliged to send in mine in an incomplete state.

The whole respectfully submitted.

PETER MACFARLANE,
Inspector-General.

St. Hyacinthe, Dec. 3, 1895.

Mr. Robert Wherry (in English).—Would Mr. Macfarlane kindly tell us if the paying for milk according to its quality, as shown by the Babcock test, is admitted to be correct without dispute. I ask this because Professor Dean, after having carried out the system for a whole year, says it is not correct. On the other hand, Professor Van Slyke, of Geneva, N. Y., recommends the plan; and now comes another authority, John Gould, of Ohio, and he tells us it is not exact. In my county I have not been in a position, up to the present time, to assure the makers that the system is a good one, for I have not been able to impart to them any stable fact in snpport of the theory that the Babcock is the true test of the quality of the milk. I am perfectly satisfied that it is true and fair to pay for milk after this test in creameries, but in cheeseries it is a different thing. I ask the question to settle the point, because no one man of science will give me a convincing reply, and I cannot look upon the question as settled until I get a more definite solution.

Mr. P. Macfarlane.—Professor Dean's[1] rule is very peculiar. To the percentage of butter fat given by the Babcock he adds $\frac{2}{10}$ per cent. of fat. It is easy to see that the patron who has 3 per cent. of fat, and to whom is added $\frac{2}{10}$ per cent., is in a more favourable position than he who has 5 per cent. and to whom only $\frac{2}{10}$ per cent. are added. This rule seems to me to favour the man whose milk is poor to the detriment of him who sends in rich milk. In such extreme cases, I am aware that the dividend, formed on the quality of the milk, does not do perfect justice to the poor milk; but I will go futher: in most of our factories we never find this great difference of from 3 to 5 per cent. unless, indeed, some patron has watered his milk, and in that case we can never pay the rogue too little. During the twenty years that we have been making cheese in this province, we have been paying the same for poor as for rich milk. Is it fair to pay for poor milk, which yields less cheese, the same price we pay for rich milk, the yield of which is greater by one or two cents more? By this new plan, rich milk may be paid for a little too high, and poor milk not high enough; but, as we have followed the old plan (payment by weight) for twenty years, I think it is high time to do justice between the two. And I will frankly say that I think it is fairer and more honest to take quality and weight together as a base for payment than weight alone. By this proceeding dishonesty is arrested.

Allow me to give you the result of an experiment made by one who was strongly opposed to the payment for milk in proportion to its quality. The process was not fair, he said; it was good for nothing, because he could make as much cheese from bad milk as from good. He went to the proprietor (who will contradict me if I am not exact) and got his leave to make an experiment, which he conducted in this way: He took 2,564 lbs. of milk, testing by the Babcock 4·10 per cent. of fat. I admit

[1] Mr. Macfarlane, pre-supposing that Mr. Dean's theory was known to the meeting, did not enter into particulars. An abridgement of it will be found at the end of this report.—E. C.

that his test was a fair one, in spite of his prejudice against the system, for I believe he made his experiment honestly. Again, he took 1,940 lbs. of milk, testing only 3·01 per cent. of fat, and with these two lots he made cheese. I visited the factory to examine the cheese, and he came to me to try it with the taster. "This cheese," said I, "seems to me to be rather too firm, too dry, but let us see when the taster is used." "And here is another," I added, "which seems too soft." "True enough," said he, "this is not very dry. The former is from rich milk, and the soft cheese is from poor milk." He had evidently tried to make as much cheese from the poor milk as from the rich milk; but what was the result? Only 8·50 lbs. of the rich milk was needed to make a pound of cheese as it left the press; while, of the poor milk, 9·33 lbs. were required. And the maker was so ill-pleased, that the next day he took the train and crossed the frontier, not being able to stand the result of his experiment.

This is, in my opinion, one of the best proofs of the value of the system: the skilful maker trying to upset our theory was obliged to acknowledge himself beaten. Had he been in favour of the theory, he would have already produced a strong proof, but disputing it as he did, his failure was a still stronger proof in its support. And so the patrons of that factory who, for the last two years have been paid according to the quality of their milk, have asked for the continuance of the system. Here, too, is another reason why they adhere to the plan. In August, two years ago, they thought one of them was in the habit of watering his milk; him they prosecuted. It cost them from $1,200 to $1,500, the defendant dying before the action came to an end. We must really have no more of these actions; none of the friends of dairying now present can wish to see patrons in court. The best way of putting an end to lawyers' bills is to pay for milk according to its richness in fat.

Mr. Wherry.—I have another question to ask; it concerns the relative richness of milk in the Province of Ontario and Quebec. The Quebec milk is the richer of the two, particularly if you take the district of Bedford as an example. I know there is nearly 1 per cent. of difference, but it seems to me that there is not an equivalent difference in the yield of cheese. This I can prove. Ontario cheese has a body firm and solid; it is a true model of a cheese. Hence, the trouble. Our cheese must be as firm and as solid as Ontario cheese, or we shall not be able to realise Ontario prices for it. If the Ontario people have 3½ per cent. of fat in their milk, and we, in ours, have 4½ per cent., we have 1 per cent. more of moisture to be got rid of—one pound more of moisture—because the extra pound of fat makes the cheese as much softer as an extra pound of moisture would make it. We have, then, a pound of moisture more to get rid of than Ontario makers have, to make our cheese as firm as theirs, so that we do not gain very much by our having an extra pound of fat.

Mr. Macfarlane.—Does not Mr. Wherry exaggerate a little by assigning to the Bedford milk 1 per cent. more fat than the Ontario milk has?

Mr. Wherry.—Perhaps so. This difference does not quite exist in it, but there

is more than one-half per cent., between one-half and three-fourths. The question is important, and I should like to see the question of the quality of milk and the Babcock test settled for good and all, for if we go to the bottom of it, we find nothing in it. To my mind, it is the greatest waste of time in the country, and the greatest hindrance to the making of good cheese, because it takes up the time of both the inspectors and the makers, who, in my opinion, ought to be devoting more of their attention to the making of cheese and the reception of the milk.

Mr. Macfarlane.—I believe the Beauharnois district has the same percentage of fat in its milk as Ontario.

Mr. Wherry.—Yes, even a little more.

Mr. Macfarlane.—Well, yes; perhaps ¼ per cent. more, that is a mere trifle. The townships, perhaps, have ½ per cent. more than Ontario, but in Champlain we beat that. I find the Quebec milk in general to be richer than that of Ontario. In some parts we have as much as 5 per cent., but in other parts the average is much less.

Mr. Wherry.—I said that the average of my milk this year, in Brome County, was hard upon 1 per cent. richer than Ontario milk. Ontario milk is in the neighbourhood of 3 per cent., while mine is a good deal more than 4 per cent.

Mr. Foster.—One of the greatest difficulties is to get men able to make the test and to select fair samples, that is, to get an exact specimen representing the whole of the milk. We have not one man out of twelve able to make the tests with the method we now employ.

Mr. Macfarlane.—I confess that the taking of a good, fair representative sample is one of the most important points towards a fair test, and that it is impossible to take a fair sample unless the milk is most carefully stirred.

Mr. Wherry —But if you stir the milk over night, the fat globules will have got together on the surface and you can never distribute them equally again.

Mr. Macfarlane.—If the milk is kept well stirred during the evening, very little cream will rise.

Mr. Wherry.—Still you will not get a perfect sample.

Mr. Macfarlane.—If a patron were to bring a lot of milk with the cream a-top, I should just say to him: "You do not attend properly to your milk; take care that the cream is not allowed to rise, for, in that case, your milk will not give a test that will do you justice." Then, that will support the Babcock plan and oblige people to take care of their milk.

Mr. Wherry.—I was about to say a word on what Mr. Foster has just observed. I know factories that use the Babcock and pay for milk according to its quality, and whose makers use this machine as an instrument of dishonesty. They have used it to retain the patrons. If a patron were to say: "Your test shows too low, I shall go with my milk to the next factory," another test is made next day and is made to be

as good as the rest. The milk ought to be treated by honest people, by men able to make tests, according to the methods followed by experts. If you allow the inspectors to look after the testing of the milk it gives them too much work. You would then need competent men to superintend the cheese making, for it is impossible to do both these things at once. Now, the reception of the milk and the making of the cheese must necessarily be carefully attended to, for upon them depends the quality of the cheese and upon that depends the price.

Mr. Macfarlane.—As regards the large proportion of inferior cheese, I think it was necessary to investigate tne cause. For my part, in the course of my work, I found that a great many patrons were very negligent about their milk. I could name case after case, where the patrons paid no attention to the advice.

Mr. Wilkins.—(In English) There are innumerable instances where the whey is kept in the sun all day in the tin cans that carry the milk, and that, up to the moment of the evening's milking. Some means *must* be found to rid us of milk of that kind, and to prevent such stuff, that has been refused by a good maker, being accepted by his neighbour; otherwise, we shall always have plenty of inferior cheese.

M Plamondon.—In my visits, I observed that the great trouble lay with the patrons. At the factories, where sour milk is left in the cans, I perceived a bad smell in the surroundings, in the cheese too, and defective drainage. I frequently pointed out to the people that all the damage arose from the leaving of the whey too long in the cans; that by leaving it thus all night it was impossible it (1) could be good in the morning; perhaps, too, in some cases the cows are not properly fed. I would remark all these things, and as soon as I saw signs of them, I would point them out to the patron with a request that he would attend to them, or if he would not, to stop sending in his milk. This would at any rate lessen the difficulties.

An unknown.—I have met with many makers unable to use the Babcock, men who cannot take a fair sample or prevent the cream from rising.

Mr. Wilkins.—I have observed, and M. Bourbeau will, I think support me, that one cause that makes the cheese inferior in quality, is that too much moisture is left in it. I know a maker who could never succeed in making prime cheese, and why? Because he had two rivals, one on each side, less than a mile from his factory. Three factories in three miles of road! The two outside makers turned out good cheese, firm and solid, taking the regular quantity of milk, or perhaps a little more, to make a firm cheese. The one situated midway between the two took perhaps half a pound less milk to make a pound of cheese, and sold it for the same price as the other two. M. Bourbeau visited this factory with me; the cheese was worth at least a cent and a half or perhaps two cents a pound less than that of his

[1] *It* cannot refer to the *whey*, though it seems so in the original. *It* must mean the milk. —A. R. S. F.

neighbours; but he got the same price for it, and the patrons got a little more for their milk. As long as we do not succeed in obtaining a real difference in the price between good and inferior cheese, so long shall we continue to fail in producing, uniformly, cheese of the best quality in the province. Instead of men hunting after the dollar, men like these hunt after the cent.

M. Plamondon.—I think the sellers have themselves to blame a little in that we do not get the highest price for our best cheese. I had a conversation recently with a buyer. I asked him if he did not find as good cheese in Quebec as in Ontario. "Yes," he replied, "and even better." "Why, then," said I, "do you not pay as high for it?" "Because," was his answer, "we can get it for half a cent less." It is no use your trying to get 11 cents a pound for your cheese if your neighbour sells his for 10 cents; if yours bears the same mark you will have to take 10 cents for it." "But," I answered, "you do not pay according to its value, you do not work in the interest of the province." "Certainly not," replied he: "we are naturally more ready to buy Quebec cheese, because we make more profit out of it, buying it, as we do, for half a cent less. Why does Quebec take a lower price? Because the people do not lay their heads together. If they only were to agree about it, make good cheese, and ask a good price for it, they would get it, sure enough."

Mr. Wherry.—That is true. I think that the difficulty arises from your not being organised for the purpose of selling your goods. Had you a good organisation for that purpose, as the buyers have in making purchases, you would be certain to get good prices. It is the good cheese that suffers in this respect at all seasons, and it is with that quality that the buyers make most money. In some parts of this province, I do not think there is any difference in the prices, but good cheese and bad both sell for the same money. In some districts, the difference made is only trifling, whereas it ought to be at least a cent or more a pound. If Ontario gets half a cent more than Quebec, it doubtless owes the advantage to organisation. Adopt the system of Ontario, New York, and the States in general, and you will be certain of realising better prices.

Mr. Castel read the Report of Mr. Geo. W. Ferguson, Inspector of Syndicates of Cheeseries, No. 2, of the County of Shefford.

REPORT OF MR. GEO. W. FERGUSON.

Inspector of Cheesery-Syndicate, No. 2, of the County of Shefford.

I have great pleasure in presenting, as inspector, my third annual report. My work began on May 1st, and the season ended October 31, a period of six months, during which I visited the factories and made tests of milk during 156 days, besides

making 146 short visits. The syndicate comprised 21 cheeseries and 2 creameries and each factory received, on an average, 10 visits. The total number of milk samples tested was 8,000. Eighteen cheeseries, in addition to the creameries, pay their patrons according to the richness of the milk by the Babcock test, and the system has worked so well that a proposal to return to the old plans found few, if any, partisans. The adoption of the Babcock system had two good results: 1. It completely dispelled even the suspicion of skimming or watering, and every patron was convinced that he was paid for what he took to the factory, neither more nor less. In the second place, the system stimulated and encouraged the patrons to produce the richest possible milk, and, consequently, the quality of the milk was generally improved; so that the makers were able to turn out more and better cheese from a given quantity of milk. During last season, I had only four letters to write to patrons sending in milk below normal quality, and the notice was sufficient, no fine having had to be inflicted. Though the season was very full of difficulties, the makers succeeded, in spite of everything, in turning out a fine quality of cheese, which realised the highest market price. But the market, I regret to say, was discouraging and hardly profitable, almost up to the end of the season, when there was a slight rise, though it came too late to do much good. The syndicated factories kept faithfully to their engagement to sell their cheese "*subject to inspection at the factory*," and the experience of the outside factories, which sold "*subject to inspection at Montreal*," was cruel enough to confirm the Shefford makers in the opinion that they had chosen the wiser part, and adopted the best and most practical plan of selling their goods. The cheeseries made 660 tons of cheese, and the two creameries 73 tons of butter, compared with 610 tons of cheese and 71 tons of butter made last year; a pretty satisfactory result, if we consider the exceptionally dry season of '95, and the poverty of the pastures, due to the drought.

It would be an act of injustice were I to omit to praise the zeal, loyalty and skill of the makers, who, without exception, were most successful in their work. I may also mention that the Shefford makers won one of the three prizes offered by the Montreal Exhibition Company for the best syndicate of the province, and that in the presence of the most active competition.

In conclusion, I wish to acknowledge the hospitality and kindness invariably shown to me by both patrons and makers; they served to make the discharge of my duties a genuine pleasure.

The whole respectfully submitted.

GEO. W. FERGUSON.

Inspector.

REPORT OF M. J. D. LECLAIR,

Superintendent of the St. Hyacinthe Dairy-School.

MR. PRESIDENT AND GENTLEMEN,

The St. Hyacinthe Dairy-School, by its professor, is always happy to give an account of its labours during the year, at your annual conventions. Last year, the encouragement it received from all parts of the province was still more emphatic than that accorded to it in past years. The number of pupils that followed its course of instruction and received theoretical and practical instruction amounted, last year, to 312; 53 of whom in butter, and 253 in cheese-making. And there were, besides, more than 85 applications for admission that had to be refused. Moreover, towards the middle of last season, it was thought necessary, in order to give more satisfaction, to increase the capacity of each course by six pupils, and in spite of all, you see there were 80 youths desiring instruction at the school that could not be admitted. Seeing this, the Dairymen's Association decided to enlarge its present school, in order to be in a position to answer all demands, and to push forward, as regards our trade, the work of progress in the province of Quebec. This year, the Association has laid out rather considerable sums. It has raised and widened its building, its school, has given it a fresh arrangement (*of rooms*), and the pupils will certainly find themselves more at their ease. I trust that this year, the pupils who seek admission, whatever be their number, will all find entry.

We are doing our best, in our courses to instruct our pupils in all the improvements that have been introduced into the manufacture of butter and cheese. We try to show them, as far as possible, the progress of the art in that direction. But we find that if the makers, generally speaking, repay us for our teaching, because it helps them to improve in the making of butter and cheese, all those concerned do not show the same degree of interest in it. It is all very well for the maker to take every means to improve his factory, his machines, the quality of the materials he employs, but he will always remain in the same degree of inferiority, as regards the quantity or quality of his product, unless the farmer, who sends him the raw material, goes along with him in the path of progress, and tries to render the manufacture more simple, by giving every requisite care to his milk, and not taking to the factory any milk that is not of good quality and in good condition.

The management of the Dairy School, agreeing therein with the Dairymen's Association, has thought it right to insist earnestly on the quantity and quality of the milk. I mention this here, in order to attract your attention to this subject, which I consider of great importance, and also to show you what we can do, by way of improvement, in the making of butter and cheese. We cannot possibly reach the acme of perfection, unless the farmer, for his part, does all that he ought to do to deliver to the maker the raw material in as good condition as possible. On this account, we have begun a series of courses on this subject. These courses are

immensely important, and, joined to the syndicates, I believe that this system of instruction may be developed easily and rapidly throughout the whole of the province. In order that the improvement be distinctly perceptible in a very few years, the makers, who come to the school for a few days, a few weeks perhaps, to gain information, should be thoroughly convinced of the necessity of learning, not only their own duties perfectly, as well as what the farmer must do to improve the quality of his milk, but also that it is their bounden duty, as soon as they return to the factory, to share their information with the farmer. This, I feel, is the only way for them to secure the improvement of their goods, and in it they will be greatly aided by the local and general inspectors. I believe that it would greatly assist in giving our goods on the foreign market that position and reputation we wish them to obtain.

The Dominion Assistant Commissioner of dairying, who is in charge of the courses I have mentioned, also gives lectures upon certain points in feeding that will tend to reduce the cost of producing milk. Farmers must be convinced that nothing short of our whole united efforts will succeed in enabling us to gain our end—the possession of the English market. They must know that the victory will rest with that country that can produce the cheapest pound of butter or cheese. If the farmer fancies that at present there is neither advantage nor profit in keeping cows, he must not allow himself to be resigned to such discouraging feelings. He must find out exactly how much 100 pounds of milk cost him to produce, and then endeavour to reduce this cost to its lowest limit. All the nations that are competing on the English market can stand the contest only on condition of producing the 100 pounds of milk at the lowest possible price, and I believe that the farmer, when once convinced of this truth, will direct all his efforts to this end, and has yet, at home, as good a margin of profit as exists anywhere else.

Last year I gave some advice or said a few words on the properties that export-butter should possess. I made some remarks on the way the Danes worked up their butter, and I promised the meeting to report on the possibility of our making butter in winter, as well as on some experiments I was about to make to ascertain if these methods, which are practised abroad, could really be followed exactly and with advantage here. I, immediately after this I may say, since the courses were then open, made trials at three or four different times before our pupils, on the two different ways of working up butter. The Danish way I found rather imperfect; their butter seemed to me to be greasy, and this greasiness of their butter appeared to me avoidable here at home by giving another working to our butter. These experiments I tried. I made them as much as possible at the beginning of each course, in order that the butters dealt with might be sufficiently advanced (*in age?*) towards the end of the course, to admit of the pupils judging of the difference between them, if there was any. In Denmark the butter is worked several distinct times. A good deal of salt is applied. After the last working, a good deal of brine has to be expelled in order that the butter may be mild (1) as the English market

(1) *Doux, i.e.*, with very little salt in it, A. R. J. F.

requires it. I asked myself if we could not get the same result by another process. To this end, instead of not working the butter till a great deal of salt had been added to it, I worked it at first a little, a very little, so as to expel a small quantity of water from it as it emerged from the churn. After having thus freed it from water, I added the necessary quantity of salt, just sufficient to make it mild, as the English taste requires, and I found in all these cases, at the end of each course, in the judgment of all the pupils, that the butter that had received a heavy salting and had been worked several times, turned out to be invariably rather more greasy than the other, and had begun to be "off flavour" within the ten following days; while the butter worked in the other way still retained its flavour, contained no more water, and had much more colour. I am happy to be able to give you this, the result of my experiments, and to have fulfilled the promise I gave at last year's meeting.

The Dairy School regrets, gentlemen, that on account of the alterations undertaken this year—which have taken much longer to make than was expected—we have no other investigations and experiments to submit to you; it would have been most advantageous to have introduced an account of them to the meeting, and this it was our intention to do. It was a disappointment, but we could not help it. I hope, gentlemen, that at the end of next season we shall be able to give you a more detailed report, and to show you a good number of samples of butter, which may enable you to determine the relative value of one or the other mode of making up mentioned above.

Thanking you, gentlemen, for your attention, I am now at your command and ready to reply to any questions you may wish to ask me.

M. D. V. Bourbeau.—The Montreal buyers sometimes complain of our butter as being *marbled;* this happens chiefly in districts where butter has not been made for a long time. No doubt, want of experience is concerned in this fault, and I should be very glad to learn from you how to obviate it.

M. Leclair.—The first thing that I can say on this matter is to tell you the way to make butter so as to have none of these white spots in it. I think it is easy enough to avoid them. These white spots are, I believe, caused by small lumps of cream that have not become butter, the cream having dried in the vat, either at its surface or its circumference, or even in the separator itself. It sometimes happens that the separator runs short of milk, and in that case, the cream dries, gets into small lumps, which harden in the interior of the machine, and undergo the action of the churn and butter-worker without being converted into butter. It is these small lumps that cause white spots. Other white spots there are that are caused by curdling, those lumps more or less big that are found in the *taster* when it is thrust into the butter. These bits of curd sink to the bottom of the churn and remain in the butter. The best way of preventing these bits of curd from remaining in the butter is to allow the butter to float at first on the surface of the butter-milk itself, and then to draw off the butter-milk, replacing it by enough water to allow the butter in grains to float, so

that the bits of curd maybe drawn out along with the undercurrent of butter-milk and water.

There is also another cause on which I cannot pronounce a positive opinion; the *marbling* is sometimes attributed to the decomposition of the fatty matters. This is a point to be determined by scientists rather than by practical men: it is their business to enlighten us on this subject.

M. Chagnon.—The butter you call the better of the two has only been worked once?

M. Leclair.—Yes, M. Chagnon, only once.

M. Chagnon.—You assert then, that butter only worked once is the best?

M. Leclair.—I say that, in principle, the less greasy butter is the better it is, and I also say that the more butter is worked the more greasy it becomes, in spite of all the precaution you may take. So, if it be possible to have good butter, in which the salt is perfectly distributed, and entirely freed from the butter-milk and any excess of water by one sole working, I do not see the use of giving it two workings, or why, when the desired result is obtained, the operation should not terminate.

M. Chagnon.—But if you make your butter drier than is usually done, you diminish the yield by taking out the weight of the water.

M. Leclair.—You lose some water, it is true, and water has its value on the Montreal market, for it is high-priced there. But in England, water does not sell well. Our butter for export must be above all things dry and mild. I think that those who had an opportunity of examining the samples of Danish and Swedish butter that was sent us to Montreal, must have been convinced that they were dry, as dry as butter can be made. It was butter made for exportation, and for that trade it was a model; just what our export butter ought to be. For Montreal, it is not required to be so dry, as that market is not so particular; consumers there will take butter with some water in it.

M. Chapais.—What proportion of water should there be in good butter?

M. Leclair.—Good butter should not contain more than, at the most, 14 per cent. of water.

Mr. Wilkins (in English).—I should like to ask M. Leclair a question about salting butter. Can butter be properly salted otherwise than with salt in powder? Is it right to do it with brine? Which is the better way?

M. Leclair.—(In English) That depends upon your customers, whose tastes must be consulted.

M. D. V. Bourbeau.—You stated, M. Leclair, that the *marblings* are caused by the cream drying in the machine.

M. Leclair.—Yes, Sir.

M. D. V. Bourbeau.—And this cream may also dry, I presume, in the vat, for want of enough stirring?

M. Leclair.—Doubtless, sir.

M. D. V. Bourbeau.—How many times a day should the cream be stirred?

M. Leclair.—The cream, especially immediately after separation, should be stirred pretty frequently, to get rid of as much as possible of the froth that comes to the surface; but it must be left quiet for at least five or six hours, after the thorough stirring, to allow the ripening to be well carried on. When the froth has almost entirely vanished, there is not much fear of the drying causing those bad effects of which we are talking.

M. D. V. Bourbeau.—As to the ripening of the cream, there are ferments on the market to aid it, are there not?

M. Leclair.—Yes, sir.

M. D. V. Bourbeau.—Where can we find them? How much is to be used to the gallon or to the 100 lbs. of cream? At what point in the process are they to be added to the cream?

M. Leclair.—There are several sorts of ferments which can be used to advantage. When the milk is not of good quality, when it is not likely to make, by itself, butter of good quality, we use what is called "pure culture," which is to be had at the chemical laboratories; or we use a ferment that can be made at home with very high-flavoured milk. In both cases, the milk selected to serve as "*mother*" must be the product of cows in a perfect state of health, and in the most propitious time of their lactation. Great care is required in the preparation of both these kinds of ferments, because in this, as in all kinds of cultivation, upon the choice of seed depends the result at harvest. The "pure cultures" are sold in either liquid or solid form. I have used both forms, and am equally satisfied with their respective effects, though I have not compared them rigorously with each other as regards their products. The average proportion to be added to the cream is about 5 p. c., but that depends upon the quality of the cream in question. To propagate the "pure cultures," a certain quantity of skim milk is to be *pasteurised*, by warming it up to 175° F., and maintaining it at that temperature for a quarter of an hour; then, lower the temperature as quickly as possible to 80° or 90°, add the "pure culture" in the proportion indicated by the directions sent with the packet or bottle, and place the mixture in a warm place, where the temperature can be maintained for 20 or 24 hours. You then have to keep it in a very cold place to prevent the fermentation continuing.

The preparation of the second sort of ferment is conducted thus: Set the selected milk to cream; ten or twelve hours afterward draw off the skim milk, and warm it up to 88° F. or 90° F., keeping it at that temperature for a score of hours. When the curd is well formed, divide it as firmly as possible, and it is ready to use. The percentage for use is about the same as with the "pure cultures."

Mr. Wm. Haven—You mentioned just now that the Danish and Swedish butters

were dry and very smooth (*onctueux*). It is said that the Danes work their butter as often as three times. To what do you attribute the perfect texture of their butter, if you hold that an *onctueux* butter can be made with only one working?

M. Leclair.—It is because the Danes have the good fortune to be able to get their butter on the market more quickly than we, so that they do not churn at the same temperature as we do, but at a higher one.

Mr. Wm. Haven.—But, in general, the butter is worked twice?

M. Leclair.—Yes, almost universally in Europe, I have seen the butter worked a great many times, even 6 times, when a very dry butter was desired. But I do not think it necessary to work it as often as that. It depends on the temperature, and on the facility there is for getting rid of the buttermilk and water.

Mr. Haven.—What distinction do you make betwen Danish and our butter?

M. Leclair.—Judging from the samples I have examined, I must say that I never saw in Denmark butter with a finer flavour, more delicious, than in Canada. We are well able to compete with the Danes in this article, and I am certain that we shall succeed well, if, of course, we have good milk and work it up properly.

M. Chagnon.—Can you tell me to what you attribute the little bits of curd you mentioned just now?

M. Leclair.—If, for instance, you allow your cream to ferment too much, and it is thin cream, with some milk in it, you must be careful not to let it curdle. All fatty matter has a tendency to rise to the surface, on account of its feeble density, and the under-milk being a mass of curds, it will be very difficult to prevent having curd in your butter.

M. Taché.—In the conversations I have had with M. Leclair, I think I have remarked that he did not hesitate to say that the *marblings* may be caused by the insufficient working of the salt into the butter.

M. Leclair.—I did not hesitate to tell M. Bourbeau this. I told him what I thought was the cause of the "marblings." The difference ia this: I know that some people seem to attribute these "marblings" to an imperfect admixture of the salt. I do not think that this is the chief cause. I do not quite agree with M. Taché on this point, and for the following reason: If we examine things from their starting point, we find that, all at once, the maker is astonished that he has got marbled butter; he traces back his mode of working, and finds that he has made no change in it; he has used the same salt, mixed it in the same way, in a word, the manual operation has been the same, and still, there is the fault, a fault that did not previously appear. Can we say that up to that time the salt had been always properly mixed, and that it is so no longer? Of all parts of the process it is certainly that which varies the least, and we can say with certainty that a good maker, or even an ordinary one, does not make mistakes in this point. It seems to me, then, more reasonable to look elsewhere for the cause of these marblings.

M. Taché.—You said just now that these marblings depend especially on the cream being allowed to harden in the vat. Will you tell me, please, what proportion to the whole the cream hardened in the vat represents?

M. Leclair.—Very little. Not more than a tenth.

M. Taché.—Not a tenth! No, not a hundredth! If that is the cause of the marblings, how do you account for my having seen marblings that occupied 75 p. c. of the surface of the butter, the yellow part only occupying about 25 p. c.? And more than that, I say it is impossible that dried cream can have been the cause of these marblings. I had once 30 or 35 tubs of marbled butter; it had been made as usual. When I discovered its defect, I told M. Dufour to work it over again, for the fault must depend on the imperfect admixture of the salt. It was re-worked; the butter regained its proper uniform colour. Having sent it to Montreal, I showed the lot to Mr. Ayer, and asked him what he thought of the butter. He replied, after having examined it: "I have seldom seen finer butter than that." Therefore, the marblings are evidently derived from the imperfect admixture of the salt and not from the curd, for there was no curd present, neither was there any cream that had been dried in the separator. M. Dufour is an excellent butter-maker: he used to be your assistant at the school, and he has won several prizes for his butter during the past autumn.

Mr. Haven.—Do you not think that the variations of temperature exercise some influence over the making of butter?

M. Leclair.—On that point, my opinion is that if the temperature changes suddenly, the ripening does not go on so well or so equally, and when the fermentation of the cream works unequally, some parts of the cream are not ripened, and those parts cause marblings. Still, I think that, by restoring the proper temperature, we can ripen the cream perfectly under all circumstances. In the second place, when there is a sudden, abrupt change in the temperature, and the change is such that the butter is hard to work, I say that it is still possible to obviate this difficulty by imparting a fit temperature to the water used to wash the butter, and that we should never allow ourselves to be vanquished by the temperature.

M. Taché.—Do you admit that the more or less thorough admixture of the salt with the butter when working, can produce marbling?

M. Leclair.—The imperfect mixing in of the salt may cause a difference of colour, but not marblings. That experience I have never had. I have worked butter many and many a time, M. Taché, and I never found cause to attribute the marblings to the imperfect admixture of the salt.

M. Taché.—From what you say, it would seem that the marblings are due entirely to the way in which the cream is ripened.

Mr. Haven.—If the salt used for butter is not pure chloride of sodium, there may be an alteration in the colour of the butter.

M. Salefranque.—And those white specks may very probably come from salt that has absorbed some of the cream.

M. Leclair.—If the working takes place when the butter is very cold, the proper admixture cannot be made.

M. Taché.—Here are authors who treat on this subject, among others, Gurler and Gosta Grotonfelt. By them we are told that these marblings are caused by the imperfect admixture of the salt, and by that exclusively. The little white specks are caused by the effect of cream that has dried in the vat. One can feel them on touching them with the finger.

M. Camirand.—Do you not think that these same marblings are caused by the butter being too cold when it is being worked?

M. Taché.—Certainly I do. It is chiefly during cold weather that the trouble manifests itself.

Mr. Haven.—I fancy I remember that, in some refineries, salt is refined by means of an acid. This may change the effect of the salt. It is certain that adulterated salt will change the colour of the butter, and it would be prudent to ascertain that the salt used for butter is pure. In Brittany, where the butter is excellent in quality, and where it never shows marblings, the makers use nothing but pure sea salt, taken in its natural state after a previous washing. It is pure chloride of sodium.

M. Chicoine.—I have always been most successful when I only worked my butter once. I never found marblings that were caused by the salt, except when the butter had not been worked long enough or at the proper time. When marblings are visible, they are due entirely to the way the butter has been worked.

The Rev. Frère Charest.—When you speak of working, do you mean the working that is produced by the effect of the salt on the butter, or simply the manual work?

M. Chicoine.—I mean the manual work.

M. D. V. Bourbeau.—I, too, think it is caused in the manual work. When one is obliged to use ice or ice water on the butter, and the maker is not careful to recommence the turning of the churn at once, thus leaving part of the butter in a prolonged contact with the iced water, instead of making this iced water enter into intimate association with the mass of the butter by churning; in such a case, may not the difference of temperature occasion a discolouration of the butter?

The session adjourned till 7.30 p.m.

SESSION OF TUESDAY EVENING, DECEMBER 3, 1895.

The Secretary, M. Castel, read the following telegram from the Hon. Louis Beaubien and Messrs. Milton Macdonald and Jos. Girard, M.P.P.'s:

E. CASTEL, S. D. Ass., Waterloo,—

Detained at Quebec by the discussion of the budget of agriculture. Shall be with you to-morrow afternoon. Good luck to the meeting.

(Signed) LS. BEAUBIEN,
M. MACDONALD,
JOS. GIRARD.

And of a letter from Mr. Sydney Fisher, Vice-President of the Association:

1018 SHERBROOKE STREET, MONTREAL, Dec. 2nd.

DEAR MR. CASTEL,—

I regret to have to inform you, and through you the directors and members of the Dairy Association, of my inability to be present at the convention at Waterloo. As you know, I have been quite unwell for some months back, and lately, for several weeks under the doctor's hands in Montreal. My adviser tells me he cannot allow me to risk the fatigue and excitement necessarily attendant on such a gathering, especially trying in the condition I am in. He orders me to go South very soon for a month or so, and says that such a meeting would be sure to undo the improvement lately made in my health and prevent my being able to leave probably for several weeks. It is important I should make this trip South at once, so I do not feel justified in disregarding the doctor's orders. I need not explain to you and my fellow-members of the Association my disappointment at not being present. As you and the directors know, I have urged your coming to the Townships, and you now are in our district in consequence of the kind consideration of my invitation. I feel therefore especially remiss in not being on hand to welcome and aid in entertaining the Association. I know, however, that in the hands of Mr. Parmelee and the Waterloo people you will be well taken care of. I am sure the meeting will be a success.

I trust you will not separate without a good appreciation of our district and people, and that your visit to us will awaken a still greater interest in our business and stimulate a closer intercourse between the various parts of our beloved and splendid province. Please convey to one and all my deep disappointment, coupled with my heartfelt wishes.

Yours respectfully,

SYDNEY FISHER.

M. Louis Bouchard, Mayor of Waterloo, read

THE ADDRESS OF THE CITIZENS OF WATERLOO.

To the Delegates of the Dairymen's Association of the Province of Quebec:

GENTLEMEN,—

The Convention that is on the point of being opened will constitute an epoch in the annals of the town of Waterloo by the good which it will beyond doubt produce, both as regards its inhabitants and the people of the surrounding country.

The Association represented by you, gentlemen, has already, with the concurrence and encouragement of our rulers, done much for the advancement of the farmers of the province; and we trust that its success in this direction will go on always improving, for we feel that in working for the development of that class, the most numerous of our population, you are working for the advancement, the progress and the prosperity of the Province of Quebec at large.

Without doubt, thanks to the zeal of those enlightened men who are at its head, to the encouragement of our clergy, to the assistance of our public men, to the generous concurrence of all the friends of the farmer, your Association is called upon to do, what it has already given tangible proofs of its anxiety to effect, viz., to improve the lot of our rural population.

We are flattered, gentlemen, in the highest degree on the honour you have conferred on our little town in choosing it, this year, as the seat of your Convention, and we are supremely grateful to you for it. On the other hand, we may be allowed to congratulate you on your selection; for, Waterloo is one of the important centres of the Eastern Townships, and from the point of view of your association, the Eastern Townships form a very important, not to say the most important, district of the Province of Quebec. Your selection, gentlemen, while deserving of our most lively and most sincere gratitude, is an evidence of the spirit of discernment and prudence on the part of those that direct the movements of your Association.

Gentlemen, in my capacity of Mayor of the Town of Waterloo, I bid you most heartily welcome, and I trust that the hospitality that you will receive here will have a happy remembrance in your hearts, and will win for us the pleasure of again seeing you in our midst, working ever and ever for the prosperity and happiness of our good agricultural population.

LOUIS BOUCHARD,
Mayor of the Town of Waterloo.

Waterloo, December 3rd, 1895.

REPLY OF THE PRESIDENT.

MR. MAYOR AND GENTLEMEN:

In simple truth, you cover me with confusion by expressing such sentiments towards us, for we were far from expecting to receive here such a brilliant demonstration and such a cordial reception. I am really at a loss to express in proper terms our gratitude for the kind, the sympathetic words of welcome we have just heard from your lips. Still, without deserving all the praises you shower upon us, we may at least tell you that we know wéll how to appreciate the encouragement and sympathy of men of feeling like you, Gentlemen. You have been good enough to place at our disposal, for the holding of our sessions, this large and convenient hall of your Town Council; and more than that, you have carried your liberality so far as to allow us the use of "The Canada Hotel, where we are receiving such generous treatment.

Pray, Gentlemen, accept this expression of our lively gratitude; be kind enough to accept the office of imparting to your colleagues, the Councillors of this prosperous and pretty town of Waterloo, as well as to all your fellow-citizens, the expression of our deep gratitude.

We are always fortunate enough to encounter, wherever we hold our meetings, the sympathy of sensible people. I say sensible, because, indeed, men like you, who desire the prosperity of the country and labour to render more abundant and more fruitful the sources of progress in our province, have the best of rights to be so qualified. And no doubt, your kind words will be for us, for many a day, a real encouragement to pursue our object: the aim of our labours, and the work we have undertaken. It is a certainty, that with the encouragement of the most intelligent part of our population and the liberal assistance of our rulers, we shall be enabled before long, to restore our beloved country to prosperity and happiness; to obliterate emigration; to restore to the home of the farmer, ruined by routine cultivation and destructive customs, happiness and ease.

Mr. Mayor, we once more thank you sincerely for the truly royal reception you are offering us. We shall carry back to our homes a grand souvenir of this district, so advanced, populated by such enterprising people, and called "The Eastern Townships." We are fortunate, Sirs, in having accepted the reiterated invitation of him who represents you in our Association with so much zeal, Mr. Fisher, our Vice-President; and if we were unable to come hither before to-day, it was because other engagements hindered us. We are glad, now at last, to enjoy your frank and pleasant hospitality. Again, I say, we shall carry away with us a lively and agreeable recollection of our sojourn in your enterprising little town of Waterloo, and I trust, Mr. Mayor, that, if the Almighty grants us life, a few more years of existence, He will also give us an opportunity of revisiting this fine country. For this evening then, I will in conclusion, bid you not "Adieu" but "Au revoir." [1]

[1] D'Artagnan when dying, wishes his friends Porthos and Athos "au revoir," i.e. we shall meet in heaven; but to Aramis he bids "adieu," as one doomed from his rascality to a warmer climate.—A.R.J.F.

ADDRESS OF M. l'ABBÉ MONTMINY.

President of the Dairymen's Association.

GENTLEMEN,

In spite of the idea that the word " Waterloo " conveys to a French mind, the Dairymen's Association of the Province of Quebec, although chiefly composed of French members, was not afraid of selecting for the place of meeting another Waterloo. What could it fear there, indeed, since it would meet in that place Canadians of English descent, not enemies, but allies contending side by side with them in the same patriotic struggle, with the generous object of making the Province of Quebec a rich and prosperous country for the benefit of all the Canadians that inhabit it.

On this new field of battle, where we are assembled, we intend, during the two days of our tourney, to inflict divers strenuous blows on our adversaries. These adversaries are routine, bad farming, carelessness in observing the rules that govern the economical production of food, and, especially the faults which, in the making of butter and cheese, may hinder us in deriving from dairying, which industry we are here to-day to represent, those profits that it ought to give us.

That we may meet these our enemies with advantage, it were well, first of all, to reconnoitre the field on which the battle is to take place, that we may thoroughly understand its peculiarities. Let us set about this together, by casting a glance over our position, as regards dairying, during the past year.

At our last meeting, at St. Joseph de Beauce, one conclusion we arrived at was, that we must determine, during the then coming year, to intensify three principal ideas in the minds of that numerous class of farmers who devote themselves to dairying.

First: That in order to raise the Province of Quebec to the height of the position demanded from her by the English market, as regards her dairy goods, pains must be taken to enlist the greatest possible number of the creameries and cheeseries in the ranks of the existing syndicates, or in others to be created where none already exists.

Secondly: To try to instil into the minds of farmers who produce milk, the conviction that the small factories, receiving but little milk, are not in a position to make sufficient profits to erect a proper building and to pay a good maker, so as to ensure first-class goods; that these are the worst obstacles to the uniform production throughout the Province of first-class butter and cheese, and that they must cease to compete, disastrously and deplorably from every point of view, with each other and with the really well appointed factories.

Thirdly: To show the greatest possible number of the farmers of the province the great advantages they can derive from the study and practice of the valuable

information contained in the report of the tour undertaken last year in England, Denmark, and France, by MM. Gigault, Com. of Agriculture of the Province, and Leclair, the manager of our St. Hyacinthe Dairy School.

The Board of Directors of the Association wisely decided that, in order to impress these three ideas more emphatically on our people's minds, there was no better way than to hold, in each of the chief districts of the province, *comitia* of dairying, organised by the directors of the association, each in his own district. This decision of the Board has been thoroughly carried into effect.

Both our governments, the local and the federal, have assisted this work liberally, the former by furnishing the association with the sum needed to meet the expenses to be incurred at the meetings held by its official lecturers; the other by allowing the Asst. Com. of Dairying, Mr. Chapais, to place himself entirely at the command of the Association, in order to aid the successful issue of its *comitia*. Nineteen of these have been held in as many districts, and the immediate result has been the formation of 38 syndicates against the 25 we had last year. I only mention these figures *en passant*, as I see by our programme, that one of the lecturers at this meeting is to address full details to the audience. Still, I will mention the fact that, in these *comitia*, the attention of our farmers has been drawn to the movement, made at our last convention, for the organization of a society for establishing good roads, a society the necessity for which I then mentioned in a few words I said in my opening address. I am happy to be in a position to state that some of the arguments advanced in favour of such an association by the speeches at the *comitia*, have been reproduced in some of the agricultural papers of Ontario and the States. Evidently, these papers imagine that we are already well advanced in the good road-question, while, unfortunately, we are still, as regards this business, in the ruts. It now concerns our honor to prove that we do not take out our payment in sound argument alone (*nous ne nous payons pas seulement de bons arguments*), but that we are men of action as well, in profiting by this convention to enrol ourselves in an association for the establishment of good roads.

Another point discussed at our last meeting, is the danger of overloading the cheese market, easily perceptible then, and the necessity arising from that danger of devoting ourselves more earnestly to the making of export butter, and the means to be taken to secure the exportation of this produce, of the finest quality, and in perfect preservation, to the English entrepots. Our society, in convention, after having thoroughly studied this question, supported with all its energy a request from the butter-makers of the province to the federal and local governments, asking the former to organise a service of refrigerators on the railroad and steamers, to insure the perfect preservation of the butter during its transit to England; and asking the latter for a bonus on the butter thus exported, in order to prevent the exporting farmers from incurring losses during the time that must elapse before their butter shall have obtained a good reputation on the English market. This report was strenuously backed by resolutions passed by the dairy comitia I mentioned just

now. Without expatiating on this matter, I am happy to inform you that these steps have not been taken in vain, and that, judging from the results, we may hope that, thanks to the liberality of our governments, we shall take on the English market a place as advantageous to our butter trade as we already occupy in the cheese trade.

Some of you will probably be astonished to hear me speak of the satisfactory place we occupy on the English cheese market, when you look at the low price cheese sold for all last summer. But there is nothing surprising in such boldness. Undeniably true is it that we made but little profit out of our cheese last season, but we are no worse off in that than our neighbours of Ontario and the States.

The same lot befell all. And this lot, it may as well be said, was, in a great degree, caused by our own fault. We had observed, and when I say we, I speak of our association, by its board of directors, by its school, by its comitia—that if we kept on opening so many small factories, making, almost without exception, bad cheese, our cheese would lose its character in England, just as the States ruined the reputation of their cheese by its export of *filled cheese*.

We advised that only makers of the best cheese should be employed, so as to have nothing but first-rate cheese to export.

That every factory should join a syndicate.

To the objection to the small factories, the reply was to open this year about 300 of them, the greater part of which had no earthly reason for their existence.

To the objection against unripe cheese, the reply was, in some places, to continue selling cheese only from five to eight days old.

To the objection against incompetent makers, the reply was, in some factories, the engagement of third-class makers, on the principle that, since an inspector of syndicates had to be paid, it was his duty to teach inferior makers their duty.

Lastly, in some districts where they have been advancing backwards, instead of forming themselves into syndicates, those already existing were allowed to go to pieces. I am not citing this as if it were a general evil, thank God; no, but the facts of this kind are, unfortunately, too numerous to allow us to speak of them as exceptional, and have greatly contributed to render our position still worse than it would have been made by the bad state of the market this year. Now, there are some persons who will never accept the advice of the disinterested and experienced leaders of the dairy industry. To them I will say frankly that the crisis we have just passed through has been a blessing in the disguise of a curse. Be it far from me to rejoice at the misfortune of my fellows. My character of a priest forbids me, more than any one, to indulge such a sentiment; but I say that the small factories that, having made inferior cheese this year, sold it at such low prices that, after having ruined their owners, they had to close their doors before the end of the season. These factories, I say, have only suffered the fate that they, of their own act, prepared for themselves.

I say that those dealers in dairy apparatus who, to get rid of their implements,

sold, in season and out of season, by constant pressing, their goods to people who, they knew, were about to enter into competition with factories already existing in places where there was only room for one, these dealers have received their just recompense. Through the effects of last season's crisis, they have not been able to collect their debts, their customers not being able to pay for the apparatus purchased, and they have deliberately involved themselves in these losses of their own free will and act.

The result will be that next year we shall have fewer small factories and, therefore, less bad cheese, and a market less overcrowded in the spring, by reason of the great diminution of the turn-out of fall cheese, both in Canada and the States. Consequently, next season will begin under better auspices, and the lesson, a rather costly one, will at least be profitable to us.

After the tour of MM. Gigault and Leclair in Denmark, and the publication of their report, we found that, according to the information they brought back, our Dairy School was not perfect in some points, which is easy to understand, considering that we were only apprentices, so to speak, when we got it up. Our Board of Directors therefore thought that one of the most important of the things demanding our attention this year was to improve the faulty parts of this institution which has already done so much good in this province. The board then addressed itself to the Hon. Commissioner of Agriculture, M. Beaubien, and he, feeling the importance of the question, got a vote of the sum needed to make the necessary improvements. The result is that to-day the Dairy-School is on a much better footing than it was, and is in a position to accommodate a larger number of students. This will exempt us from the cruel necessity we were in last year of being obliged to refuse entry to 83 pupils, after, however, having admitted 312. The courses will be as thorough as usual this year, in the sense that special lectures will be given on the management of factory engines. The school-board has besides, engaged a Dane as assistant butter-maker.

As I am speaking of the school, I may as well acquaint you with some changes that have been made in the management. You are perhaps not all aware that our dairy school is only able to continue its work by the liberal assistance it receives from the Dominion and the Provincial Governments, from both of which it receives, annually, ample grants. Seeing this, it became the duty of the Board of Directors of our Association to enable the Departments of Agriculture, at Ottawa and Quebec, to ascertain easily the manner in which the association is expending these subsidies. For that reason, this year, the committee of the school has been reorganised, or rather, has been replaced by a Board of 3 managers; of whom one, M. Milton Macdonald, of Bagot, M.P.P. for Bagot, was appointed by the Quebec Department of Agriculture; another, M. J. C. Chapais, Dominion Asst. Com. of Dairying, was appointed by the Ottawa Department of Agriculture; and the third, M. J. de L Taché, was appointed by the Board of Directors of our Association. We must feel grateful to the two governments for having had the delicacy to select their two

managers from among the directors of the association, a circumstance that renders the administration much more efficacious, seeing that these three gentlemen are all thoroughly acquainted with the duties incumbent upon them. Thanks to all these improvements, our Dairy school, which is still under the supreme direction of Prof. Robertson, Dominion Commissioner of Dairying, is in a position to render the public still greater service in the future than it has rendered in the past.

In touching on the different subjects I have mentioned in my address, I insisted on the fact that we have received that aid and encouragement that we needed to carry on the work that the Dairy Association of this province has undertaken, namely, the regeneration of our agriculture. I cannot sit down again without speaking of one of the means, and that a most powerful one, of agricultural regeneration that has been placed not only within our reach, but within the reach of all the farmers of the Province of Quebec, by our zealous Commissioner of Agriculture, M. Beaubien, during the present year. I mean the publication of the "*Manual of Agriculture*," by Mr. Edward A. Barnard, "Le Livre des Cercles Agricoles." I do not hesitate to declare that there is not one *agronome* in the province as capable as Mr. Barnard, who, for the last 25 years, has been the champion of progress in farming in the Province of Quebec. Turn over the agricultural papers of that period, open the reports of the Department os Agriculture, and of our different agricultural societies, question the farmers throughout the whole province, and you will read in every publication, you will hear from every quarter, that Mr. Barnard, long before our legislators had begun to institute any agricultural policy with tha t liberality of ideas they have since developed, had brought forward those ideas, had formed his own programme—he, a simple farmer—and had striven to inculcate these same ideas into the mind of his countrymen. Farm-lectures, dairying, beet-sugar industry, ensilage, the restoration of Canadian cattle, he was one of the first to attack all these questions, one of the first to all advocate in these causes. And, to-day it may be truly said that his book is the crown of this life of exertion, a life spent in striving against routine, and in making our farmers appreciate wholesome agricultural ideas.

Like all experimentalists, he had to meet with failures; like all men of strong convictions who pursue an object whose importance engrosses that entire intellect, Mr. Barnard may have, in striding towards his end, jostled some whom he found in his way, travelling more deliberately than he, coming along sometimes in an inverse direction. or, very frequently, not moving at all. Such things are inevitable; but looking at the good he has done to the farmer-class, these failures, these collisions must be forgotten, and nothing must be left in view, except the so noble, so splendid result, to which he, not alone but one of the first, and most effectively, contributed. Thisresult is none other than the great movement of unintermitting, continuous progress in which our province now shares, one who, even by the confession of our Ontario neighbours, who, for a long period, thought themselves our superiors, is advancing rapidly in the path of the prosperity of the world at large, contending

with other nations successfully, and showing that she possesses quite as many means as they of obtaining the prize of the contest. Our country's climate is a very varied one, and this prevents us from following uniform rates of cultivation in all parts of it. On that account, books on farming, published in other countries, are often in many points more dangerous than useful. And, thus, we need a book of our own, written for us, by one of our own people, by one who knows thoroughly the country, the climate, its wants, and the methods of cultivation that suit it. This book we now have. Thanks and honor to its author! Thanks and gratitude to its originator. This book, with the manual, "La publication du fromage Cheddar," and the "Journal d'Agriculture," may constitute for our farmers the commencement of an agricultural library.

I have kept you a long time, gentlemen ; we only meet once a year, and, as one always likes to have a long chat with our good friends one sees but seldom, I rather forgot myself. I apologise for my forgetfulness, and leave you to your important labours, for which I wish all the success they deserve.

LECTURE BY MR. ED. A. BARNARD.

How are the Profits of our Agriculture to be Increased?

By Improving the Quality of our Goods.

Dairying in Canada is at present passing through one of the most serious crises it has encountered since its establishment. Already many patrons have left off supplying the factories, and many factories, particularly the poorer and worst arranged of them, will have to change their plans completely, or to vanish from the scene. It is doubtless a misfortune for the proprietors of these factories, for they will suffer serious losses ; but this misfortune will indisputably have its brighter side, since it will, in no long time, facilitate the production of better butter and cheese, which will fetch more money, while creating for us an enviable reputation and a more certain demand for the products of this province. Now, gentlemen, selling for a higher price any article that has not cost more to make is a most desirable feature in trade ; but to establish a reputation, a trade-mark that is in request, on account of its being connected with uniformly choice articles, is an excellent way of meeting boldly the fearful competition which we at present encounter in the English market, the sole market of any extent on which we can reckon for many a long day.

The Warnings of the Past.

At our last annual meeting at Beauce, as at our previous meetings, we received full warning that the production, in such large quantities, of inferior butter and cheese, could not fail to create for us, sooner or later, a good deal of trouble. Well,

gentlemen, this trouble, this positively ruinous fall in the price of our goods, did not delay its appearance, and I estimate at about $2,000,000, the sum which we, the patrons of the cheeseries of the province, lost during last season's manufacture. Shall I surprise you, gentlemen, by stating that this too green cheese, this cheese made with a view to an over-great yield (without due consideration of its condition when the time for its consumption in England arrived), this inferior cheese disgusted the buyers, and greatly lessened the demand ; and that the superabundance of cheese of this inferior quality was the cause of the fall in price that we have had to suffer ? In consequence, we, the cheesery patrons of Quebec have lost, for our share, about $2,000,000 ! Do we really form a just notion of what this sum represents ? It is about one-half of the total cost of the annual administration of the province, justice, education, lunatic asylums, legislation, public works, etc., etc., in fact the whole of the Government's expenditure in the good management of the province. And, to think that this year, the cheesery patrons, to their own share, have lost such a sum, on a single item of our agricultural products !

In hopes that the following good advice may produce good effects, at least in the future, let me remind you of what M. Saül Côté, a friend as devoted as he is enlightened, said to us last year :

"I assert that neither purchasers nor inspectors are strict enough, because I am now speaking in favour of the general interest of the dairy industry. Is it likely to favour that trade if we send to the foreigners an article which must of necessity depreciate our products ? Is it likely to be beneficial to the farmer and to improve our trade if we make a few more dollars of profit one year to lose twice as much the following year ? And yet this is the inevitable result of the system of the buyers, and even of some inspectors ; they close their eyes to the imperfection of an article, while all the time they know that the article in question is likely to depreciate us abroad."

How Can the Cost of Production be Lessened ?

I am now about to try and show you that we can produce milk at much less cost than heretofore, and that, if we really give our minds to it, our entire system of farming can be made much more profitable. And I can do this with all the more confidence, since, in this meeting, I see before me an audience of superior class ; representatives of progressive, intelligent agriculture, flocking in their hundreds from all parts of the province, and ready to undertake the duty of carrying back to their respective homes "the good news," good news that I hope to give you to-day, and which may be condensed as follows : Every farmer who shall, in earnest, fully determine to do so, can double his crops in a very short time, without any serious increase in the present cost of his cultivation. And if he continues in this road, in a few years, he will see his crop yield tripled, and probably quadrupled. Don't cry out too vociferously, please ; I repeat it without hesitation : If we are determined, we, the farmers of Quebec, are now in a position shortly to double the yield of our

farm-products, and even to triple them before very long. I need not tell you that, if we ever reach such a result, it will be wealth for us, in the place of the too narrow circumstances which, up to the present time, at least during the last forty years, have been the lot of the greater number of us farmers. I affirmed this ; that we may, if we choose double and triple our net incomes ; and it was before the agricultural missioners, priests as well as laymen, at Oka, last July, that I said it, and I gave the means of doing it in detail, in a lecture that, forming the second part of this essay, will be published with it in our next annual report.

The next day, M. L'Abbé Dauth, Curé of St. Leonard de Windsor, gave us, with much diffidence, the results that he himself had obtained, after three years farming in his new parish, and that with very moderate outlay in improvements, which any of us can imitate if he likes. In order that there be no possibility of error, I will quote almost verbatim what he said :

"Already, after only three years of improvement, I harvest as much on my small farm of 16½ arpents (14 acres) as are usually grown on farms of 40 or 50 arpents (33.85 and 42.30 acres.) The secret of my successful work lies in the cultivation of hoed-crops and the continued restitution of manure.

"When I reached St. Leonard, in the summer of '91, I harvested that fall 75 bushels of turnips, 18 of oats, 8 of wheat, 3 small loads of hay, and my pasture could not carry my horse and cow.

"When autumn arrived, I put on my meadow and pasture about 8 bushels of lime to the arpent. The rest I ploughed a good depth and spread some 12 bushels of lime to the arpent. In spring I gave 300 lbs. of Victor fertiliser to each acre of pasture and wheat, sown down with clover and timothy, and on the rest of the ploughed land I put in peas, vetches and oats.

"I have continued this system ever since, ploughing up in the fall, the old meadow and pasture, liming, and in spring dressing the new meadow and the grain sown to grass-seeds with 300 lbs. of the Victor.

"From year to year my receipts have greatly increased. Last year, '94, I grew 1,800 to 2,000 bundles of hay of good quality, in two crops ; 101 bushels of barley, perfectly clean and good measure ; 600 bushels of mangels for my cows ; 125 of other roots ; 2,700 cabbages (*choux moelliers*) ; 70 bushels of potatoes ; 2½ of corn ; ⅜ of a bushel of beans ; 40 gallons of cider ; 11 gallons of grape-wine ; 18 of rhubarb wine ; 56 lbs. of honey, and 40 lbs. of tobacco.

My five cows have yielded me, in money for butter and cheese.	$207 00
With whey, etc., clover-pasture, and a little grain, I fattened ten hogs that brought me in.....	261 00
Total	$468 00

"So, this fall, I received $4,680 in money, without reckoning what remained of my year's crop ; and, remember, I do not count in the milk, vegetables, eggs,

poultry, and other little luxuries brought to the house, as additional rewards for our work."

There, gentlemen, is what a very modest, though very earnest curé has done himself, on 16½ arpents of land, without neglecting the souls of his parishoners !

Last spring, M. Dauth wrote me word that his people had bought three carloads of Victor fertiliser, at one order, besides ashes and lime in great quantities. See, again, the fruits of a good example !

I ask you now : has M. Dauth rested satisfied with doubling or tripling his crops in three years ? I have carefully computed his returns, and from a valuation of the two harvests of 1891, and 1894, I find that the latter is at least FIFTEEN TIMES as great as the former !

The Economical Production of Milk.

I shall speak to you presently about the manuring of the soil. To-day, I shall only enlarge on the care of stock so far as to say that, in summer, cattle require pure water and plenty of food, with shelter from the burning rays of our torrid sun ; in winter, warmth, light, and good ventilation ; and at all times, constant and kind treatment, scrupulous cleanliness, and great regularity in the feeding-times. As to the care to be taken of milk and the cleanliness to be everywhere observed, allow me to repeat the wise advice which, last year, our zealous and skilful manager of the Dairy School, M. Damien Leclair, gave us :

"Farmers, it is you who produce and deliver to us the raw material ; and, in spite of all their good will and skill, the makers will always be dependent upon you as regards the quality of the butter and cheese they turn out. You are, indeed, the most interested parties in this affair. The costs of making, of commission, of sale, will hardly vary much, and every rise in price will be to your sole profit. It is, therefore, your interest to produce and deliver well flavoured and well kept milk at the factories."

The Economical Feeding of Cattle.

I now proceed to the very complex question of the food to be given to cows in order to make them yield plenty of rich milk at the lowest possible cost. Last year, when talking about the fattening of pigs, I imparted to you the principles that form the basis of the feeding of cattle in general. I shall, therefore, not go over that again, but I earnestly recommend you to review these principles, which you will find in the excellent report of our Association for last year, which was lately sent to you all by our very active and devoted secretary, on whom, allow me to say *en passant*, it reflects great credit. Recalling to your memory then what I said last year and what was published, on the rational principles of cattle-feeding, in the *Journal d'Agriculture*, it will be sufficient, I think, to give you some model-rations, which will enable you to prepare some of the same kind, without going aside from the different

fodders and other feeding-stuffs you have at hand. The rations, when once prepared, in the proportion pointed out, are to be given according to the animal's appetite, rather than in a fixed quantity. Still, it will generally be found that the quantities mentioned in the following tables are very nearly what an average animal will consume in practice.

Economical Rations for Stock.

For the thorough apprehension of the following rations, I must ask you to observe these rules which apply to each of them :

1. The greater the products (*milk or meat ?*) of the animal, the richer must its ration be in the constituting principles of those products ;

2. The weight of dry matters in the food may vary from 2 per cent. to 4 per cent. of the live weight ;

3. These rations are calculated for an average temperature of 55° F.

ECONOMICAL RATIONS FOR CATTLE, Etc.

BY 1000 lbs. LIVE WEIGHT.

TABLE. I.

Complete maintenance ration, without increase of weight or production of milk.

FOOD-STUFFS.	Quantity. lbs.	Solids. lbs.	Carbo-hydrates. lbs.	Digestible. Protein. lbs.	Digestible. Fat. lbs.	REMARKS.
Theoretical Ration.	**20 to 40**	**10.00**	**0.70**	**0.20**		
1st PRACTICAL RATION.						THE STRAW MUST BE OF THE BEST QUALITY.
Oat-straw	10.00	8.57	3.42	0.17	0.10	This ration is perfectly proportioned. Other roots may replace the mangels. Salt the straw slightly.
" chaff.....	10.00	8.57	3.62	0.24	0.09	
Mangels.....	30.00	4.00	3.00	0.33	0.03	
Total	50.00	21.14	10.04	0.74	0.22	
2nd PRACTICAL RATION						Another good ration, much less costly. The excess of fat supplies the want of enough carbo-hydrates. The silage-clover represents only 2½ lbs. of hay.
Oat-chaff and straw...	25.00	21.42	8.80	0.51	0.23	
Red clover silage.....	10.00	2.08	0.64	0.30	0.16	
Total	35.00	23.50	9.44	0.81	0.39	
3rd PRACTICAL RATION.						This ration must be chaffed and moistened previously. Cheaper than the second. The timothy had better be ensiled. So, half the hay will be saved and the cattle will like the ration all the better.
½ Straw and ½ Chaff of oats	20.00	17.14	7.04	0.41	0.19	
Timothy hay	5.00	4.28	2.29	0.35	0.11	
Total	25.00	21.42	9.33	0.76	0.30	
4th PRACTICAL RATION.						Observe: the straw without the chaff[1] is not so rich. Half the clover would have been saved had it been ensiled, and the stock would infinitely prefer it.
Oat-straw	20.00	17.14	6.84	0.34	0.20	
Clover-hay	5.00	4.25	1.90	0.38	0.07	
Total	25.00	21.39	8.74	07.2	0.72	

[1] *Balles*, here rendered chaff, are the *glumes* in which the seed lies.—A. R. J. F.

ECONOMICAL RATION FOR CATTLE, ETC.

TABLE II.

Cows yielding 10 lbs. of milk or fattening beasts, increasing 2 lbs. live-weight a day on an average.

FOOD-STUFFS.	Quantity.	Soilds.	Digestible. Carbo-hydrates.	Digestible. Protein.	Digestible. Fat.	REMARKS.
	lbs.	lbs.	lbs.	lbs.	lbs.	
Theoretical Ration.		**20 to 40**				
Maintenance	.....	.....	10.00	0.70	0.20	
10 lbs. of milk	.....	.....	0.40	0.40	0.40	
Total	.....	.....	**10.40**	**1.10**	**0.60**	
1st PRACTICAL RATION.						THE STRAW MUST BE OF THE BEST QUALITY.
½ Oat-straw, ½ Oat-chaff	15.00	12.85	5.28	0.31	0.14	This ration would be still better if composed of 20 lbs. straw, 30 lbs. of silage, ½ timothy and ½ clover, equal to about 8 lbs. of hay.
Timothy hay	6.00	5.13	2.75	0.42	0.13	
Red clover-silage	20.00	4.16	1 28	0.60	0.32	
Total	41.00	22.14	9.31	1.33	0.59	
2nd PRACTICAL RATION						This ration is poor in fat, so the milk will be all the poorer. The 12 lbs. of hay would have made more than 40 lbs. of capital silage. By not ensiling the hay, the equivalent of 20 lbs. of mangels and 10 lbs. of silage is lost.
½ Oat-straw, ½ Oat-chaff	15.00	12.85	5.28	0.31	0.14	
Timothy hay	6.00	5.13	2.75	0.42	0.13	
Clover "	6.00	5.10	2.28	0.43	0.09	
Mangels	20.00	2.66	2.00	0.22	0.02	
Total	47.00	25.74	12.31	1.38	0.38	
3rd PRACTICAL RATION.						This is to be chaffed and moistened previously. Though costing more than the first, it will not produce more milk. Had the hay been ensiled, there would have been 40 lbs. of silage, rich enough in digestible matters to replace the cake.
½ Oat-straw, ½ Oat-chaff	15.00	12.85	5.28	0.31	0.14	
Timothy hay	5.00	4.28	2.29	0.35	0.11	
Clover "	5.00	4.25	1.90	0.38	0 07	
Cotton cake	2.00	1.79	0.54	0.61	0.19	
Total	27.00	23.17	10.01	1.65	0.51	
4th PRACTICAL RATION.						
Oat-straw	15.00	13.85	5.13	0.25	0.15	A truly model ration; very much liked by the cattle; very digestible, and makes rich milk.
Corn silage	20.00	4.00	2.20	0.22	0.14	
Timothy silage	10.00	2.87	1 81	0.32	0.20	
Clover "	10.00	2.08	0.64	0.30	0.16	
Total	55.00	22.80	9.78	1.09	0.65	

ECONOMICAL RATION FOR CATTLE.

TABLE III.

	FOOD-STUFFS.	Quantity. lbs.	Solids. lbs.	Digestible. Carbo-hydrates. lbs.	Digestible. Protein. lbs.	Digestible. Fat. lbs.	REMARKS.
For cows giving daily: 20 lbs. of milk.	**Theoretical Ration.**	.....	**20 to 40**				
	Maintenance	.....	.....	10.00	0.70	0.20	WELL PRESERVED STRAW!
	20 lbs. of milk	.....	.....	0.80	0.80	0 80	
	Total	.....	.....	**10.80**	**1.50**	**1.00**	A model-ration, producing more than 20 lbs. of milk a day or fattening the animal; 12 lbs. of straw will do instead of 15 lbs. If no clover and timothy-silage, cotton-cake or other meal must be added.
	PRACTICAL RATION.						
	Oat-straw	15.00	13.85	5.13	0.25	0.15	
	Maize-silage	20.00	4.00	2.20	0.22	0.14	
	Timothy "	20.00	5.74	3.62	0.64	0.40	
	Clover "	20.00	4.16	1.28	0.60	0.32	
	Total	75.00	27.75	12.23	1.71	1.01	
30 lbs. of milk	**Theoretical Ration.**	.....	**20 to 40**				
	Maintenance	.....	.....	10.00	0.70	0.20	
	30 lbs. of milk	.....	.....	1.20	1.20	1.20	
	Total	.....	.....	**11.20**	**1.90**	**1.40**	This is an absolutely model-ration. It is complete, the excess of protein making-up for too little fat. It is also the most complete of all. Cotton-cake (3 lbs.) costs about 4 cents.
	PRACTICAL RATION.						
	Oat-straw	10.00	8.57	3.42	0.17	0.10	
	Corn-silage	20.00	4.00	2.20	0.22	0.14	
	Timothy-silage	20.00	5.74	3.62	0.64	0.40	
	Clover "	20.00	4.16	1.28	0.60	0.32	
	Cotton-cake	3.00	2.69	0.82	0.91	0.29	
	Total	73.00	25.16	11.34	2.54	1.25	
40 lbs. of milk.	**Theoretical Ration.**	.....	**20 to 40**				
	Maintenance	.....	.....	10.00	0.70	0.20	
	40 lbs. of milk	.....	.....	1.60	1.60	1.60	
	Total	.....	.....	**11.60**	**2.30**	**1.30**	Another equally model-ration; 3½ lbs. of cotton-cake will do. Here, hay is required to vary the food. A few roots, like parsnips, would here be useful and economical; 4 lbs. cotton-cake cost about 5 cents.
	1st PRACTICAL RATION.						
	Clover-hay	5.00	4.28	2.29	0.35	0.11	
	Timothy-hay	5.00	4.25	1.90	0.38	0.07	
	Silage	60.00	13.90	7.10	1.46	0.86	
	Cotton-cake	4.00	3.59	1.09	.22	0.39	
	Total	74.00	26.02	12.38	3.41	1.43	
	2nd PRACTICAL RATION						This ration, recommended at p. 138, rept. of Association of last year, contains too much carbo-hydrates and not enough fat. It will hardly produce 32 lbs. of milk. Though much more costly than the preceding one, it is not nearly so good.
	Timothy-hay	10.00	8.56	4.58	0.70	0.22	
	Clover "	10.00	8.50	3.80	0.76	0.14	
	Bran	6.00	5.21	2.74	0.67	0.18	
	Oats	6.00	5.14	3.34	0.62	0.31	
	Total	32.00	27.41	14.46	2.75	0.85	

Legumes.

It being granted that the farmer works too many acres, he must grow plenty of "*smothering crops*," the richest possible in nutritious matters. Legumes, such as clover, tares or vetches, lentils, horse-beans, haricot-beans, large kinds of peas, are of that kind. The peas and horse-beans can even be grown in rows and horse-hoed, and that most successfully. Too much importance cannot be attached to these crops, and this is the prominent point touched upon in this lecture. It is the especial "*Good News*" that I beg every one of my hearers to attend to, to carry it home with him, with a firm determination to spread it abroad, and to make it "*bear fruit a hundredfold.*" And if these legumes, which I hope soon to see you all grow on a large scale, are carefully ensiled, you will soon have to admit that your cows, fed on them, can give as much milk in winter as in summer, and that at a moderate cost for food.

Rational Feeding.

In closing this part of my subject, which treats of the intelligent and duly considered preparation of cattle food, allow me to repeat with Jules Crevat, that learned practical farmer, crowned by the Association of the Farmers of France, that he who knows how to compound his rations so as not to give any nutritious element in excess, will feed three beasts equally well, where his neighbour, less skilled in his business, can only feed two. And the reason of this is that the latter, in order to give the proper quantity of certain indispensable elements, will give a superabundance of other elements; a superabundance not only useless but hurtful. An illustrative comparison will give you a better apprehension of the points that are most difficult to seize in this matter.

Let us suppose there are three wood-cutters met in a shanty. The owner of the place has only 2 lbs. of beans, in the way of food; another has for his share 2 lbs. of good fat pork, and the third has 3 lbs. of dry bread. It is clear, is it not? that if confined to his own things, neither of the three could feast luxuriously and do plenty of hard work. But supposing that, after talking the matter over, they agree to have all their food in common! The first cooks his beans with the second's pork, the third supplies the bread, and there they are: by a sensible use of the necessary food-materials, each, after dining copiously, is able to do a good day's work.

And exactly so it is with our cattle and their food; straw, which, alone, is but a poor pittance, makes an excellent basis for food, provided some good silage of clover or of tares and oats, cut green, be mixed with it.

Hoed-Crops.

Hoed-crops form the basis of all improving cultivation and of all really profitable work. They afford an opportunity of deep pulverisation of the land and the best means of cleaning it, and that by the whole series of preparatory work required for

their full success. They demand emphatically careful and repeated hoeings, by which the weeds are destroyed as soon as they show themselves and before they gain any height and strength of growth. They invariably produce crops of much greater abundance and value than those that can be grown without hoeings. Lastly, by the care they exact, they ensure during the remainder of the rotation, at whose base they lie, and without need of greater expenditure of labour, fuller and cleaner crops, that are, in consequence, grown at a cheaper rate. Now, to produce at the lowest possible cost, that is the sole means of contending with the strong competition we encounter on all the great markets of the world to which our chief products are sent.

How to Triple our Crops.

It is by multiplying our average of hoed-crops well managed, and by manuring the land with commercial fertilisers as well as with farmyard dung, that the best farmers of those countries that are now celebrated for their agriculture have succeeded in tripling and quadrupling the average of the yield of their countries, and that, after centuries of exhausting crops. It will positively be the same with our province, from the day when our farmers shall give room and the necessary care to large fields of hoed-crops and commercial manures, as complementary to farmyard dung.

The Faults of our Farming.

Our farms are, in general, badly drained; they are hardly pulverised at all; the pulverisation, [1] in farms apart from towns, hardly reaches to a depth of more than 4 to 5 inches from the surface. Hardly any of these farms have ever grown a hoed-crop, or any other real cleaning crop; in consequence, weeds of all kinds are everywhere in possession of our land. Indeed, at least three-fourths of our occupied farms have never been properly manured, not even once, perhaps, since they were first cleared. While we are discussing the best way of preserving manure, it is being wasted everywhere, a great deal of it running away through the floors of our cattle-sheds. And does not a notable part of the dung when thrown out of the stalls take the most direct road to the nearest brook? Who will be bold enough to say that I exaggerate in these statements, and that farmers do not suffer by these faults?

[1] *Ameublir* is best translated by the word *to fit*, that is, to work land until it is as thoroughly stirred as possible to a reasonable depth. A. R. J. F.

The Chief, the Only Remedy.

Let us grow hoed-crops, as many as we can; let us fearlessly use the artificial manure best suited to them; let us carry out this improved farming with courage and energy, combined with all necessary economy. Let us feed our stock intelligently, without allowing any of their manure to be wasted, and, before long, those

farmers who shall follow these counsels will see their fields, thus improved by hoed-crops, yield double and triple crops compared with their former yield, and that for several successive years, without additional outlay, except for the purchase of a few hundred-weights of artificial manure. We may therefore affirm, without fear of contradiction, that hoed-crops are of the very greatest importance to all the farmers of this province, be they rich or be they poor. In what follows, we shall adapt our advice to the wants of the poorer class.

And to these we say: Grow as many acres of hoed-crops as you can manage; preserve carefully all the manurial matter you have at your disposal; after the hoed-crops, let green-fodder follow as far as you can profitably manage it; breed good stock and keep them well; sell off at once all those that do not pay, and only keep the really good ones; do your best to buy a little lime and phosphate, manures that alone will double the yield of your crops, if your cultivation is well done and your seed free from weeds; economise in every way, so as to find means to improve your farm bit by bit; do everything at its proper season and as well as possible; and, in a few years, you will have mastered your work, and be on the road towards comfortable circumstances.

Four Questions for Solution.

There are four questions that every thoughtful farmer, rich or poor, should at once put to himself, and which he should quickly answer, according to his power, his resources, the extent and the requirements of his farm: 1. What hoed-crops can I grow? 2. How many acres each year? 3. How shall I manure the piece thus cleaned? 4. What crops will pay me best on these fields from the present time to the recurrence of the cleaning crop?

What Hoed-Crops are Suited to the Means of a Poor Farmer.

As regards the economical feeding of men and farm-stock, Providence has endowed us with very favourable resources in certain especially hardy plants. Thus, several sorts of haricot-beans and broad-beans; pease of various kinds, more or less hardy; as well as different strains of maize, suitable to the peculiarities of different soils and districts of the province; all these are easy to grow in rows for horse-hoeing and require much less manure than root-crops, yielding products most useful to man and beast, while they tend to the perfecting of the cleanness of the land, providing the proper amount of work is expended on them.

Comparison of Certain Hoed-Crops.

A crop of early dwarf haricot-beans, with the rows two feet apart, in such prepared land, may yield 45 bushels an arpent (= 53 *to the acre*). The whole crop, beans and stems, will average in weight 4,000 lbs. and the value of the food-elements

therein may be $30.95. The commercial value of the manurial matters carried off from the soil in this crop is $4.53; but the nitrogen taken from the air by this legumen, and left in the land is worth $25.60. By growing beans, and returning the potash, phosphoric acid, and lime they take from the land, the farmer has enriched his land by the pure nitrogen of the air to the amount of $21.00, all expenses paid.

An average crop of mangels, about 15 tons, with their leaves 7½ tons, 45,000 lbs. in all, contains food-elements worth $32,20. But it robs the land of manurial elements worth $25.87, without imparting anything to it, as mangels cannot utilise the nitrogen of the air. This will show what science has not yet given us, i.e. the exact value of the nitrogen imparted to the soil by the plant, the whole of which nitrogen is taken from the air; but, everything considered, we believe that our valuation is about right.

More profitable a crop of beans is, all things being equal, than a crop of mangels. And so with all leguminous plants, which are capable of conveying great richness to the land.

Moreover, every one knows how hardy a plant is the bean, how easy to grow, coming up vigorously in a few days and soon covering the whole ground; while the mangel and most of the other roots take a long time to come up, and are more subject to the attacks of insects than the bean. They (the roots) are much more easily smothered by weeds; they need more hoeing and thinning, wherein the hand-hoe must be employed; so, we may boldly affirm that one man alone with a good sowing-machine and a horse-hoe, can hoe and clean thoroughly ten arpents of beans, peas, or corn, sown in rows, more easily than he can cultivate properly one solitary arpent of mangels, or even turnips, roots much more easy of cultivation than carrots, parsnips, &c.

A Comparison of our Principal Crops.

It is useful to observe that the food-value of a crop by no means depends upon the number of bushels or pounds taken from the land, but entirely upon the quantity and comparative value of the digestible matters the crop contains. In order to prove this to demonstration, we give in the following table (No. 4 p. 94) the comparative value of our different crops, taking the carbo-hydrates at ½ a cent a pound, digestible protein at 2½ cents, and digestible fat at 3 cents. These are the proportions that men of science allow as the points of comparison for these values, under the supposition that good timothy hay is worth $9.45 a ton, as it is calculated in the tables. The quantity of nitrogen, derived from the air by the legumens, is here estimated at double what the crop contains, on account of the roots that remain in the land, which are estimated in the table, generally, at a price equal to that in the crop itself. Lastly, the same table gives the quantity of manurial matters taken from the soil, and their values according to market price. This table is very useful and deserves a thorough study.

Pease, Beans and Maize.

For the above reasons, it seems clear to us that pease, beans, and corn are the plants the poorer farmer should select for his hoed-crops. With these he may, if he choose, clean perfectly a considerable part of his arable land. And more, if he sows clean seed, he may hope to see disappear, in great part at least, the weeds that have heretofore infested his farm, and smothered so large a part of his crops.

Silage and Root-Crops Compared.

Roots have a special value; this is not mentioned in the table because it is not to be estimated in weight or in money. It is the thrift that the cattle show when they are fed upon them, and the quantity of *roughage* such as straw, &c., they consume, when they get plenty of roots, that show their value. But we must not forget that few of our farmers, even of the richer class, are yet in a position to grow large fields of roots, and that, consequently it would be almost impossible for them to clean by hoed-crops of this kind a sufficiently large part of their farms. Now, without a sufficiency of hoed-crops, it is impossible to clean a farm and to obtain the largest possible profits from it. Neither must it be forgotten that the legumens ensiled will have the same value as roots in cattle-feeding, and that these legumens and maize-fodder for silage will allow of a sufficient proportion of land being cleaned every year.

How Many Acres of Hoed-Crops Should be Grown Yearly.

It is a difficult question to answer exactly, since hoed-crops can only pay on land that is well drained, well worked, sufficiently manured, and free from any large and serious obstructions, such as rocks, roots, brushwood, &c., &c. But it may be freely stated that the more land the poorer farmer can, with proper cultivation, put into pease, beans, and corn, in rows for horse-hoeing and sufficiently manured, the less land will he put into grain after grain without hoeing; the more clover, vetches or lentils he grows for green-meat, &c., the more profit will he derive from his stock, and the sooner will he and his family attain to a comfortable state of prosperity.

Possible Yield of 60 Arpents of Land.

The following table (No. 5, p. 96) shows what sort of crops will be soon grown if the principles announced above be followed to the letter. It is probable that, in the early years, you will not get the quantities given in the table, but you will arrive near enough to them to secure a notable improvement on the old system, and to afford encouragement to the farmer to continue the rotation he has begun to follow. And too great an extent of hoed-crops than can be properly worked must not be undertaken; for the essential thing is to prepare the land thoroughly for them, and to give them the care needed to get crops that should be very clean and altogether paying ones.

TABLE IV.—COMPARATIVE COMPOSITION AND VALUE OF THE CROPS TO THE ARPENT. (1)

KIND.	Solids per 1,000 lbs.	QUANTITY		FOOD-MATTERS OBTAINED.				MANURIAL MATTERS ABSTRACTED.					
								from the air.		*from the soil.*			
					DIGESTIBLE.			NITROGEN.					
		lbs.	Bushels.	Carbo-hydrates.	Protein	Fat.	Food Value.	lbs.	Value.	Nitrogen.	Phosphoric Acid.	Potash.	Lime.	Total Value. (2)
										lbs.	lbs.	lbs.	lbs.	
Green clover	170	25,000	.....	1750	600	125	$27.50	200	$32.90	.....	28	97	96	$6.56
Clover hay	850	5,000	.....	1905	385	75	21.40	200	22.00	.....	28	97	96	6.56
Timothy hay	857	4,000	.....	1832	284	88	18.90	.....	.....	57	15	70	33	13.30
Beans—seed	852	2,700	45	1336	679	56								
" —straw	857	1,305	.....	564	100	10								
Total	.....	4,005	45	1900	779	66	30.95	160	25.60	.....	29	54	39	4.53
Peas—seed	857	1,800	30	945	374	34								
" —straw	840	2,500	.....	850	90	12								
Total	.....	4,300	30	1795	465	46	21.95	100	16.00	.....	31	66	84	5.39
Corn—seed	856	2,596	46	1612	241	155								
" —straw	850	4,500	.....	1651	72	27								
Total	.....	7,096	46	3263	313	182	29.49	.....	.....	67	25	69	20	15.50
Swedes	136	33,000	550	3135	396	33								
" leaves	116	15,000	.....	780	270	60								
Total	.....	48,000	550	3915	666	93	39.01	.....	.....	133	84	188	151	35.70
Mangels	134	30,000	500	3000	330	30								
" leaves	95	15,000	.....	600	150	60								
Total	.....	45,000	500	3900	480	90	32.70	.....	.....	95	35	189	37	25 27

Carrots	150	22,000	366	2376	264	44								
" leaves	178	7,500	.....	532	202	60								
Total	.....	29,500	366	2908	466	104	29.31	.....	.....	72	31	97	81	18.21
Potatoes	250	12,900	215	2657	258	38	20.87	.....	.....	57	27	83	18	14.63
Cabbage	180	60,000	.....	7140	540	120	52.80	.....	.....	139	117	243	139	41.46
Wheat—seed	860	840	14	518	138	15								
" —straw	857	2,000	.....	652	30	10								
Total	.....	2,840	14	1170	168	25	10.80	.....	.....	28	12	15	5	5.99
Barley—seed	857	1,200	25	766	110	27								
" —straw	857	2,000	.....	724	42	14								
Total	.....	3,200	25	1490	152	41	12.48	.....	.....	27	13	25	6	6 32
Rye—seed	857	1,064	19	717	112.7	20								
" —straw	857	2,600	.....	774	28.6	15								
Total	.....	3,664	19	1491	141.0	35	12.03	.....	.....	29	14	27	10	6.82
Oats—seed	857	850	25	473	91	45								
" —straw	857	1,500	...	513	25	15								
Total	.....	2,350	25	986	116	60	9.63	.....	.....	23	9	10	6	5.03
Buckweat—seed	860	1,107	23	653	105	18.9								
" —straw	840	1,400	.....	422	25	9.8								
Total	.....	2,567	23	1075	130	28.6	9.46	.....	.....	30	9	23	29	6.49

(1) The crop-yields in this table are not to be taken as the average of what the land can give. In many cases, much heavier yields can be grown. But these data allow us to calculate exactly how much is removed from the land in a given quantity of produce, together with the nitrogen conveyed from the air to the land by the growth of legumens. The table is also useful for comparing the total weight of the crop with the total of the various food-matters contained in the same crops.

(2) The manurial matters "soluble in water" are here valued thus: nitrogen, 16 cents a pound; phosphoric acid, 7 cents a pound; potash 4½ cents a pound; lime, ½ a cent a pound.

TABLE V—ROTATION OF 12 YEARS AND CROPS ON 60 ARPENTS. MANURIAL MATTERS REMOVED.

Years.	Arpents.	KIND.	CROPS. Per Arpent. Bushels.	CROPS. Per Arpent. Tons.	CROPS. Totals. Bushels.	CROPS. Totals. Tons.	MANURIAL MATTERS REMOVED. Nitrogen. From the air.	Nitrogen. From the soil.	Phosphoric Acid.	Potash.	Lime.
							lbs.	lbs.	lbs.	lbs.	lbs.
1st	5	Oats	40	.....	200	.....	.....	178	72	146	48
		" straw	.....	1	.....	P. 5.00					
2nd	4	Beans	40	0.75	160	P. 3.00	502	.....	123	229	188
	1	Potatoes	215		215		.....	52	27	83	18
3rd	5	Barley and Rawdon Clover	40	.....	200	.....	.....	218	98	196	48
		" straw	.....	1.25	.....	P. 6.25					
4th	5	Red Clover—silage	.....	12.50	.....	E. 62.50	500	.....	140	488	480
5th	4	Corn—silage	.....	15.00	.....	E. 60.00	.....	296	116	328	88
	½	" —seed	46	.....	23	.....	.....	37	15	30	11
	½	" —straw	.....	1.25	.....	P. 0.65					
	½	Lentils or vetches	20	.....	10	.....	64	.....	15	18	36
		" straw	.....	1.00	.....	P. 0.50					
6th	4	Peas—silage	.....	10.00	.....	E. 40.00	546	.....	159	312	408
	1	" —seed	30	.....	30	.....					
		" —straw	.....	1.25	.....	P. 1.25					
7th	1	Wheat	25	P. 1.25	25	P. 2.50	.....	49	20	27	10
	1	Rye	30		30		.....	46	22	42	16
	3	Wheat, rye, straw for silage with seeds for meadows and pastures	.....	10.00	.....	E. 30.00	128	95	72	105	98
8th	5	Clover—silage	.....	12.00	.....	E. 60.00	474	.....	132	464	356
9th	5	Mixed hay	.....	2.00	.....	F. 10.00	.....	285	75	350	165
10th, 11th, 12th	15	Pastures, or hay, as required.									
					893	281.65	2214	1261	1086	2827	1970

Recapitulation—215 bushels of potatoes and 673 of grain, &c.—10 tons of hay, 19.15 of straw, and 252.50 tons of silage.

In this table, the nitrogen extracted from the air, valued at the same price as before, represents a gain of $354.24, and the matters taken from the land, a value of $407.78. In principle, it would seem that the addition of $53.24 worth of manure should suffice to replace in the soil the balance of manurial matters removed in the crops; but, as the atmospheric nitrogen can by no means supply the mineral matters wanting, the experiments mentioned further on must be made, in order that the soil may furnish to the plant all that is required for its perfect development.

A Very Profitable Cleaning Rotation.

In order that a rotation should be a cleaning one, hoed-crops must be repeated in the same fields often enough to destroy, as far as possible, all the weeds that infest them, so that the cultivated plants may enjoy the entire benefit of the working and manuring of the soil. You must also sow, between each two non-hoed crops, one or more *smothering* crops, such as pease, vetches, red-clover, etc. The farmer who, after mature reflection, shall adopt a system of rotation in which clearing and smothering crops shall be numerous enough to give him thoroughly clean crops, will be surprised at the profits he will reap from the practice from the very first season ; profits that will increase from year to year, provided there be given, at the same time, to the land the manures that it demands to enable it to yield full returns.

What Crop Should Succeed Hoed-Crops.

After the first hoed-crop, we recommend a crop of grain ; barley will do well, with which the great red-clover should be sown. When the land is well worked and manured, barley succeeds perfectly. In this crop, occupying, as it does, the land for so short a time, clover grows apace, especially if the piece was limed the previous fall, and if the young clover is not fed off in the autumn, it will detain the early snows and prevent any damage from the frost. The following year, two crops of hay can be cut, provided the clover is mown when the plant is just opening its flowers. By giving the land 300 lbs. of superphosphate, costing about $3.00, and the same weight of ashes, without other manure, the next year, there will be from 50 to 60 bushels of Canada-corn, with 4,000 lbs. of stalks, worth as much as ordinary hay. The following season, the land being very clean, will be in a position to yield a capital grain-crop, in which plenty of grass-seed, for meadow and pasture should be sown, andthese may occupy the land for several years of the rotation, if there is much land that requires cleaning. Lastly, both meadow and pasture are to be turned up for grain, or pease, or oats and vetches, according to the need of the farmer. Thus, an ordinary rotation of 8 to 12 years will have been followed, or even longer, if the fertility of the land will allow of it.

But for those who aim at better returns, in a well cleaned farm, we advise a rotation founded on the one given in table No. 5. There will therefore be, in 12 years, 3 hoed-crops, 3 of grain or fodder-crops, and 3 smothering-crops. An ordinary farm of 60 arpents should yield upwards of 200 bushels of potatoes, 670 of different grain-crops, and fodder enough to keep well at least 20 head of cattle ; besides, with the skim-milk, grain, and fodder (*green-meat*), ten to twenty hogs should be fattened every year ! Would not that be the golden age of our agriculture ? And all this is most certainly possible; it is even a comparatively easy task for the man who firmly, industriously, and perseveringly devotes himself to it.

Importance of Stubble-Cleaning.

When land is meant to be in the hoed-crops the following season, it must be stubble-cleaned immediately after harvest. If this were delayed, the land would become hard and rain would have to fall before the harrows could get an inch or two into it, in order to destroy the weeds already up and to excite germination in the weed-seeds that may have ripened and fallen to the ground. This harrowing should be repeated across the field a week or so afterward, and the whole should be followed by a good furrow, in the fall, as deep as the soil will permit. As a general rule, a good liming of about 20 bushels of lime to the arpent, well mixed, in small heaps, with earth, and then spread before frost, will thoroughly prepare the land for the spring work of hoed-crops.

PART II.

How to Manure the Land Economically.

I have now reached the most difficult and unpromising part of my subject ; that is, I must, in the interest of the farmer, urge him to expend money, with a view to the certain and economical improvement of his crops.

Original Fertility of Our Farms.

We are no longer living in the days when our ancestors profited by the first snows to draw to the river the encumbering piles of dung that had collected at the doors of the stables and cow-houses. This, from what we hear, was the ordinary use made of dung. Perhaps the younger part of my hearers will not believe me ; but I clearly remember many seasons when wheat after wheat yielded abundance to our Canadian families. I was then a child. Later, when I began to farm, I recall perfectly a rather amusing incident, which will show the extent of the prejudice against the use of dung on some farms.

Prejudice Against Dung.

On the splendid farms of the suburbs of Three-Rivers, wheat no longer yielded as it used to yield. Bazile Doucet, my uncle, colonel of militia, and one of the heroes of 1812, was one of those who used to sell a great deal of wheat, and he was in the habit—a pretty general habit in those days—of buying for the winter holidays a hogshead of good old rum. The wheat often failed—but the rum, never ! To judge

from the gaiety of those days, it had at least the effect of taking away dull care. Well, one fine spring, Uncle Bazile said to my mother: I have sown 30 bushels of wheat. Please God, I shall easily get 400 bushels—but anyhow, I shall have sixty. My mother, who was worried about the too numerous bad harvests that had lately followed one on the other, did not see the joke, and imparted her fears to her brother. That year, the wheat turned out very badly; when it was threshed there were only eighteen bushels! Ruin stared them in the face, for debts began to accumulate little by little, and my uncle began to grumble. My mother then recalled the bad joke of the previous spring. I, intervening, advised that no more dung should be carted on to the ice, as I had seen done with my own eyes. My uncle, turning sharply to me, exclaimed: "Now, then, don't bother me. You advised your cousin Léon, last year, to spread the dung on the fields intended for peas, instead of carting it on to the ice, as we always do. He took your advice without consulting me, and all it grew was a lot of thistles. Get out with you, you and your dung!" You may judge from this how little fruit my first lectures bore; and they were purely gratuitous, too! Ah, well! that was a good forty years ago, and things, thank God, have very much changed for the better since that time.

Dung Lost or Wasted.

Nowadays, every one knows how greatly crops are increased by the use of dung, especially when there are not too many thistle-seeds in the ground! But how ignorant farmers still seem to be that, through the drip from the roofs of the stables, cowhouses, piggeries, &c., and the leakage through the floors, too many allow the most soluble, and therefore the most valuable part of the droppings of their stock to run into the brooks, even if they do not cart it on to the ice! By using behind the cattle dry earth, particularly dried bog-earth, or if there is none, dried turves from a turned up meadow or pasture near the cattle sheds: in a word, by preventing the loss of urine, and the too great fermentation of the solid fæces, we shall greatly increase the efficiency of the manure. After having taken all these precautions—which we cannot too highly recommend—our best farmers will admit that they would need at least three or four times the quantity of dung they have at their disposal, if they were to aim at properly maintaining the fertility of their land under the plough. Let us examine, then, what we lose by continuing to cultivate worn out land.

A New System of Cultivation.

At the beginning of this address, I promised to speak of a new system of farming, by which we are now enabled to grow, at a very slight expense, far better crops, than those we have hitherto produced. In all well organised countries, the govern-

ments and the learned societies have been, for many a year, making great efforts to reduce as much as possible the cost of the production of foods. They have employed, each, several skilled practical men, aided by the most distinguished agricultural chemists. They have shown us by hundreds and thousands of experiments on different crops, in different countries, and in every kind of soil and climate, that bad crops depend, at least in great part, on the exhaustion of the soil. Such ocular demonstrations—that have been followed with great attention by thousands of interested persons in Europe and America, have clearly proved that the absence of one or the other of four distinct fertilising matters, reduce the yield in proportions quite astonishing, I may say alarming. These four precious matters are, luckily, within the reach of every farmer. They are: lime, potash, phosphoric acid, and lastly, nitrogen, which, alone, forms about four-fifths of the atmospheric air that we respire. In His divine wisdom, Providence has placed, almost everywhere in the arable soil, and in abundance, all the other elements that plants feed upon. Moreover, the Almighty has created in inexhaustible quantities, and placed pretty well everywhere, but within reach of the farmer, the four elements indispensable to plant-life, and which are not found in land naturally poor or exhausted by cropping. It is our duty then—be we farmers, gardeners, orchardists or florists—to study these laws of Providence more carefully, for they rule over every sort of cultivation; and then to impart to the soil the care, and especially the nutriment, of which it stands absolutely in need.

Ocular Demonstration.

I would draw your particular attention to the engravings that follow. Let us see, in the first place, how it has been contrived that the yield of the potato, the food of the poor, has been doubled, even quadrupled.

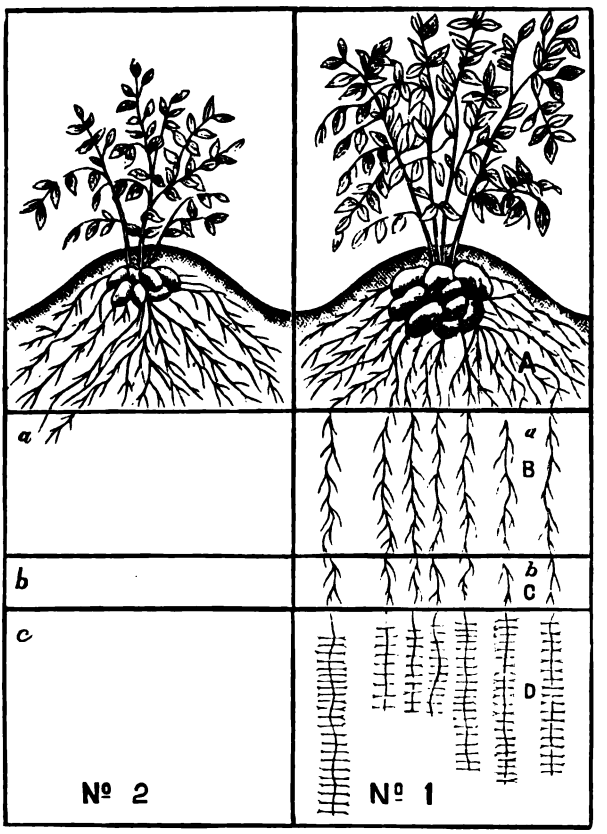
You observe in Fig. 2, an ordinary yield; still, a much better yield than is averaged in our long-settled parishes. These two cuts, we must remember, are the faithful reproduction of plants grown in the same field, in the same manner exactly, except that in one part of the plot (No. 1), the potato-crop was preceded by lupins a *legumen* that roots very deeply in the ground. The land being very light, and the subsoil dry and porous, the drought deprived part of the crop of moisture; this part is represented on the left—Fig. 2.

Very Deep Ploughing for Potatoes.

In order to ensure more humidity to the soil, and more food to the plant, the field in question was ploughed sixteen inches deep, a furrow absolutely unknown in this province. It is now proved, and that beyond all doubt, that in all light and in all well-drained soils, very deep ploughing will increase the crop of potatoes in a

marvellous manner, as it is certain then that the potato can only develop itself thoroughly in a deeply worked, pulverised soil.

EFFECT OF LEGUMINOUS PLANTS ON THE POTATO.



Effects of Leguminous Plants on the Potato

In that part of the field (No. 1), in which the lupins grew, the year before, the roots of the potato penetrated the subsoil to the great depth of 40 inches, thanks to the tiny channels formed by the strong deep-sinking [1] roots of the lupins (fig. No. 3.) The roots of the red-clover would have the same effect everywhere, when that plant precedes the potato. At that depth, the potato-roots can obtain an abundance of moisture even when the surface is quite dry. Hence, came the yield of 380 bushels an acre, or four times as much as the average yield of our worn out farms. In the "Journal d'Agriculture," August 1895, will be found all the details of this most interesting and, what is more, most profitable demonstration. Let it be our duty to repeat this experiment as soon as possible, in our fields or in our gardens, for our own good, first of all, but especially for the good of our neighbours.

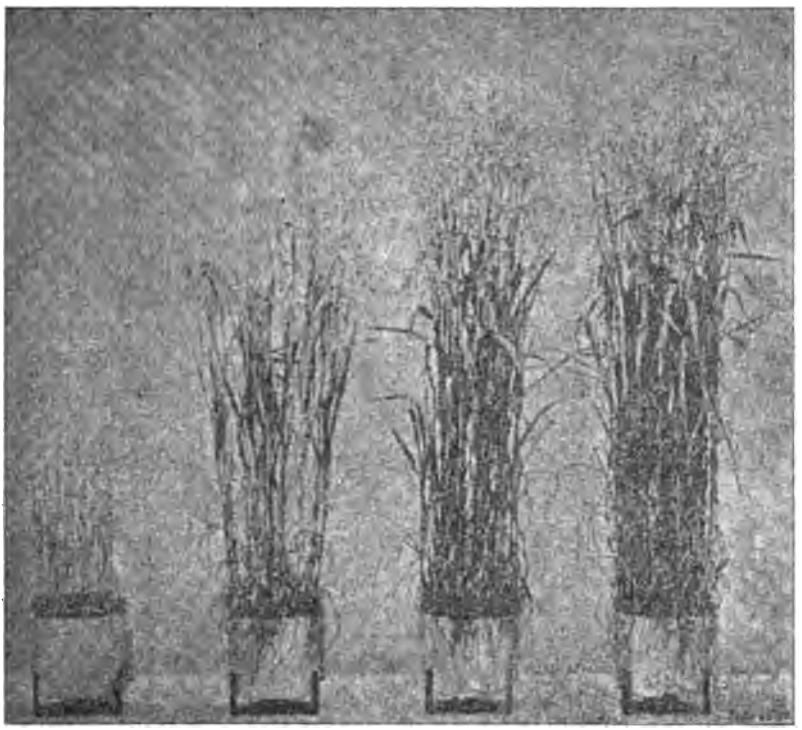
Fig. 3.—The Lupine.

Here, then, are several very distinct lessons: 1. The necessity of affording to the potato-crop a deeply worked soil, containing all the necessary elements of fertility; 2. To grow this crop in succession to a good crop of legumens, with their deep-reaching numerous roots, which will ensure to the potato a fresh source of nutriment, deeply buried in the soil, and will give it full supplies of the much needed moisture, which is more frequently wanting in dry, light land which, with that exception is very suitable to those crops, and ensures them a flavour and quality very superior to potatoes grown on heavy land. Researches, conducted with equal intelligence, have enabled us to contend, nowadays, with great success against those various diseases that, for many years have rendered potato-growing so uncertain. Such, gentlemen, are some of the beneficial effects of science, applied to agriculture, as connected with this very important branch of our crops.

Let us see now, in Fig. No. 4, the effect of giving to the plant a dose, more or less great, of nitrogen, and a complete dressing of the three other elements mentioned above. In the growing crops of grain here represented, the soil and the cultivation were exactly the same.

[1] *Pivotantes*=tap-rooted, A. R. J. T.

Fig. 4.—Effects of Nitrogen on Grain, Timothy, Etc.



(*a*) Phosphate and potash No nitrogen.

(*b*) Phosphate and potash with ½ gr. of nitrogen.

(*c*) Phosphate and potash with 1 gr. of nitrogen.

(*d*) Phosphate and potash with 1½ gr. of nitrogen.

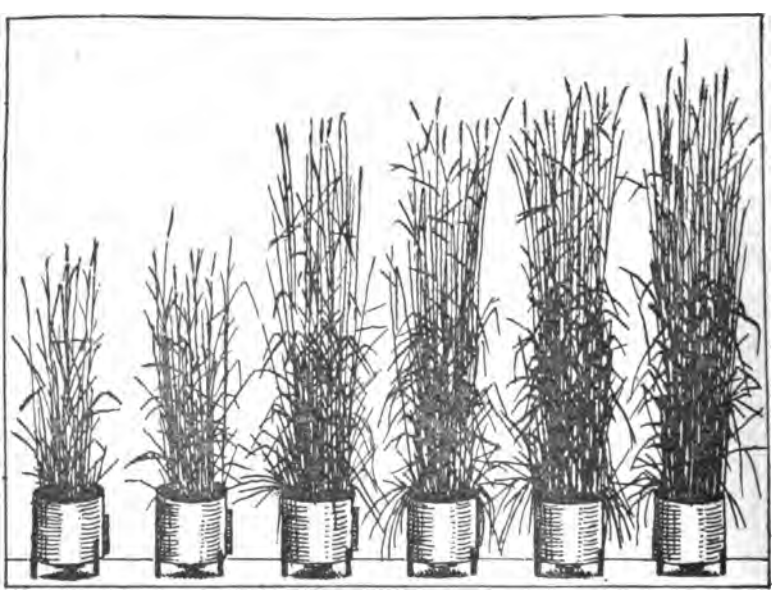
And yet, the yield is four or five times greater where the nitrogen, phosphoric acid, potash and lime are present. Instead of 7 or 8 bushels of oats per arpent, which represents the crop on the extreme left of the table, or its equivalent in other grains or roots, the judicious use of commercial fertilisers raises the yield to 28 or 35 bushels of wheat an acre, on an average of years, or an equivalent increase in the produce of other grains or roots.

The Extra Cost of a Superior Crop.

I stated, just now, that this enormous difference in yield is obtainable at a very trifling extra expenditure; and here is a proof of it: You will all admit that every farmer, must, to begin with, provide for the general expenditure of his farm. First, he must have a lot of cleared land; this must be drained, ploughed, harrowed and

water-furrowed. He must also have farm-buildings, teams, ploughs, &c., together with seed, both grain and pulse. Then, the fields must be fenced to keep stock from damaging the crops. Lastly, if he really cares for his own interests, he must prepare his farm properly, by getting rid, as far as possible, of all weeds, the worst enemies of the farmer. There, so much for general expenditure, be the land rich or poor, whatever the crop may turn out to be, and I will add that, all this being provided for and well done, the farmer must next, if he be logical, provide emphatically for the manuring of the land. For, it is impossible, without miraculous interposition, to get abundant crops from a soil void of fertility; just as it is impossible, miracles apart, to feed a family without the proper quantity of suitable provisions. Do not, gentlemen, such truths strike you at once, or to use a common expression: do they not *crèvent les yeux i.e.*, make you stare? What, then, must we think of the almost invariable aspect of our farms, many of which have been under cultivation for more than a century, and yet seven-tenths of them have probably not received from the hand of man a single dressing of manure of any kind? Is it surprising that our average yields have diminished by one-half, and even by two-thirds? Is it not full time to provide, atany cost, for the improvement of our agriculture under this head?

Fig. 5.—Effects of Phosphoric Acid.



I. Without Phosphated manure.

II. Manured partly with Phosphoric Acid as Superphosphate. In the Fall.

III. In the Spring.

For such a gradual and systematic impoverishment of land is in very truth a national calamity, that must be caused to vanish as soon as possible, and, fortunately, the means to do so are in our hands.

But before calculating how much the manuring of our farms demand, let us settle precisely how much our crops lose by the want of phosphoric acid, potash and soda; and to this end, we will examine carefully Fig. 4, 5, 6, and 7, taken from photographs of the natural objects. Fig. 4, above, shows us the effect of nitrogen on grain-crops. As you observe: no nitrogen, no good crop. This has been abundantly proved by hundreds of experiments in the different countries mentioned above. Now, it is equally proved that root-crops of all kinds demand nitrogen as well as phosphoric acid, potash and lime, the crop being absolutely nothing, as soon as one or the other of these four elements is wanting. Of this, in the case of phosphoric acid we have the proof in Fig. 5.

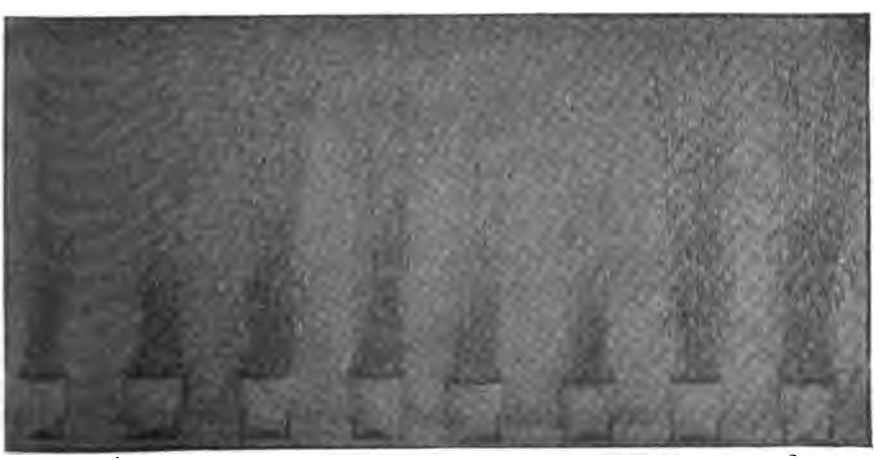
This Fig. 5, shows how necessary the phosphoric acid is, since potash and nitrogen, given in sufficient quantity, produce but little effect if phosphoric acid is absent.

The same result will be produced on any kind of crop as often as phosphoric acid is wanting. The farmer, therefore, must never fail to supply his land with a sufficient quantity of phosphoric acid.

For potash, let us consider Figs. 6 and 7. In these engravings, we see that the plants have suffered much less than in Figs. 4 and 5; and yet, for want of potash, the crop is only about one-third of what it ought to be. Heavy land always contains more or less potash, easily soluble, according to the powers of the plant, the nature

Fig. 6.—Effects of Potash on Grain-Crops.

Loam. *Sand.*



I. Without Potash. II. With ¼ gr. Potash. III. Without Potash. IV. With ¾ gr. Potash.

Fig. 7.—Effects of Potash on Grain Crops.

Loam. *Sand.*

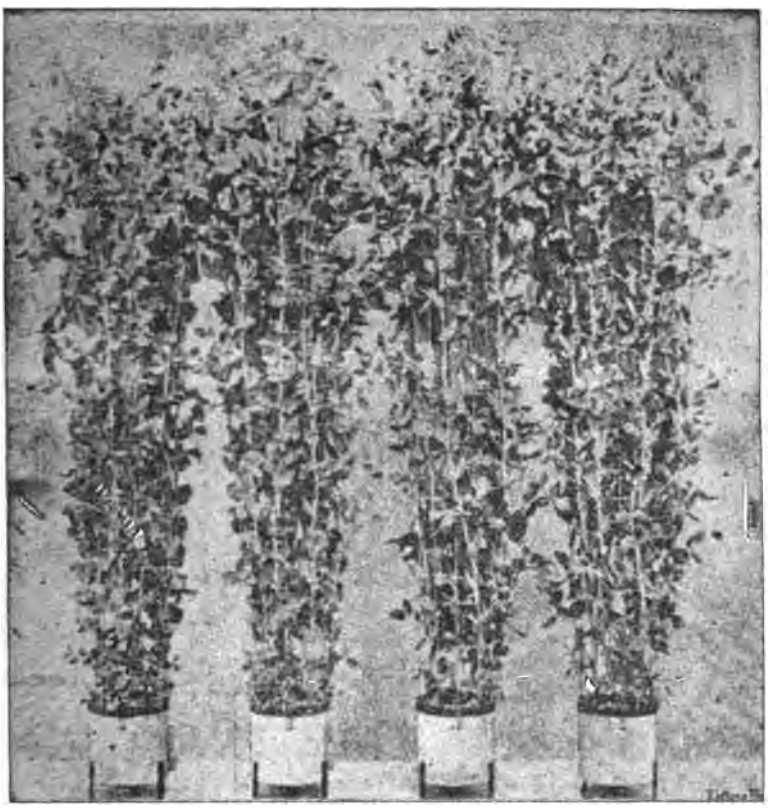
I. Without Potash. II. With ¾ gr. Potash. III. Without Potash. IV. With ¾ gr. Potash.

of the season, &c. Besides, even in our sandy soils, potash still exists, in greater or lesser proportions, especially where the bush has been burnt in clearing the land, for this operation must have left plenty of potash behind it. Still, the good effects of potash on our difficient crops must be tested by small comparative experiments. These distinct trials of each of the four fertilizing matters I have drawn your attention to will be most useful, and the attention of intelligent farmers cannot be too strongly drawn to them. They will be enabled thereby to reap great benefits to both themselves and their neighbours.

Here are two engravings, 8 and 9, which teach us a lesson, a lesson but little known until lately.

You saw just now, how necessary nitrogen is to the grain-crops and to every kind of root-crop. Now, let us attend to the legumens; pease beans, lentils, clover, and many other useful fodder plants that bear pods; here it is not the same. As soon as these plants can germinate and come up strongly; provided they have a plentiful supply of mineral food; phosphoric acid, potash, and lime; all leguminous plants can derive from the air the whole of the nitrogen they require for their perfect development. They will even leave after harvest, in their roots and the soil, a considerable surplus of nitrogen at the service of the grain and root-crops that succeed them in due rotation. Now, the dearest to buy in the market, or to produce on the farm, of all the four elements of fertility I have noticed is nitrogen; and more, most crops demand a plentiful supply of it. And what is that, but to say that Providence has, since the days of creation, been good enough to provide for the more pressing needs of the farmer, by enabling us to seize upon the free nitrogen of the air by

Fig. 8.—Effects of Nitrogen on Leguminous Plants.

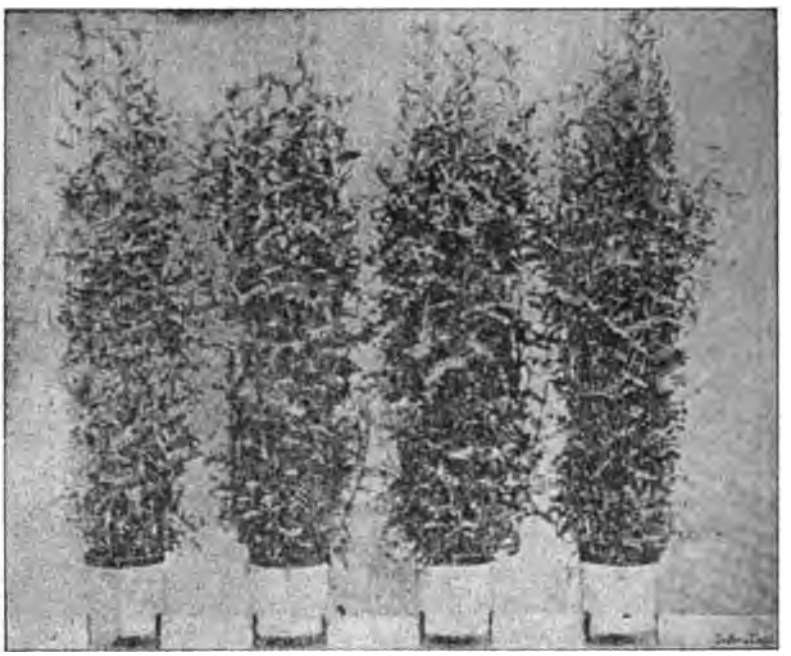


I. Phosphate manure and Potash No Nitrogen.	II. Phosphate manure and Potash besides ½ gr. Nitrogen.	III. Phosphate manure and Potash besides 1 gr. Nitrogen.	IV. Phosphate manure and Potash besides 1½ gr. Nitrogen.

means of leguminous plants, assisted by mineral manures, with which nature is plentifully supplied, though arable land is too often without them.

But, you will say: "This seems simple enough, and is by no means a novelty, since, as you admit, that all this has existed since the first days!" Man, gentlemen, must acknowledge his nothingness (*néant.*) It is with this fact as with many others, for, as an example, electricity has always existed, but how long ago is it that your streets and houses began to be lighted by it? And this power, this force, have you thoroughly mastered it yet? Has it shown you its last range of capacity? By no means, we are only just beginning to comprehend its power!

Fig. 9.—Effects of Nitrogen on Leguminous Plants.



I. Phosphate manure and Potash No Nitrogen.	II. Phosphate manure and Potash besides ½ gr. Nitrogen.	III. Phosphate manure and Potash besides 1 gr. Nitrogen.	IV. Phosphate manure and Potash besides 1½ gr. Nitrogen.

And so it is with agricultural chemistry. It hardly had an existence a hundred years ago; but, since that time, scientists have learned how to analyze foods, to weigh them, and to settle their exact value. Then, the different manures were attacked; and we were shown how to select them, and in what proportions they should be applied. Lastly, and that only recently, agricultural chemistry, has completed that grand page of its work, and shown us how to seize upon the atmospheric nitrogen; how it is transformed into nitrate, that chief of all the foods of plants.

Lawes' and Gilbert's Experiments.

Every intelligent farmer should be fully informed concerning the results obtained by experiments, carried on for fifty consecutive seasons, by Sir John Lawes and Sir Henry Gilbert. These experiments, on the same farm, conducted with marvellous skill, have proved to demonstration that farmers, who do not impart to their

land the elements of fertility they need to enable them to produce good crops, are playing a losing game. These experimenters began by selecting very fertile fields, that they divided into several plots, in which they conducted their different comparative essays. For fifty consecutive years, wheat followed wheat, barley followed barley, and oats, oats: and all without manure. Again in other plots 32,000 lbs. of the best dung was given every year to an acre; again in other plots, superphosphate, *i. e.*, phosphoric acid and lime, was used; in other plots, superphosphate, potash, soda and magnesia; and lastly with these various mineral manures united, and certain quantities of nitrogen.

Besides these successive crops, the same kind of demonstrative enquiries were pursued with the same care, on rotations.

I cannot, within reasonable limits, show you all the valuable ideas that spring from these long and interesting labours, but the following is a summary of the results obtained. You will find in it most valuable instruction as to the best means of manuring your crops.

Let us remark in the first place, that every plot, on which the experimental crops were grown, was worked until it was perfectly pulverised and free from weeds. The difference between them consisted solely in the quantity and quality of the manures given to each of them. It is not necessary to say that the seasons and the manures caused the crops yielded to vary in a marvellous manner. Thus, in the wheat crop, the yield varied from $4\frac{3}{4}$ bushels an acre, without any manure, to 22 bushels with complete manures, in the worst yielding year; but, in the best yielding year, the produce was from seventeen and a quarter bushels of wheat an acre, without manure, to $55\frac{3}{4}$ bushels with complete manure. Here again, the effect of manures was to more than triple the yield in good seasons.

CONTINUOUS CROPS OF WHEAT DURING 40 YEARS (1852-1891.)

TABLE VI.

DESCRIPTION OF MANURES. QUANTITIES TO THE ACRE (1⅛ ARPENT).	Best season 1863.	Worst season 1879.	Difference.	Average of 40 years.
	Bshls	Bshls	Bshls	Bshls
Clean Grain.				
Without any manure	17¼	4⅜	12½	**13**
14 Tons of dung = Nitrogen 200 lbs. / Phosphoric Acid 120 " / Potash 240 "	44	16	28	**34⅞**
With mineral manures: Superphosphate 400 lbs. / Sulph. of potash 200 " / " " soda 100 " / " " magnesia 100 " alone	19⅝	5⅝	14	**15**
" " " " + 200 lbs. ammoniacal salts = 43 lbs. nitrogen	39⅝	10½	29⅛	**24⅛**
" " " " + 400 lbs. ammoniacal salts = 86 lbs. nitrogen	53⅝	16¼	37⅜	**33⅓**
" " " " + 600 lbs. ammoniacal salts = 129 lbs. nitrogen	55⅝	22	33⅝	**35⅜**
" " " " + 550 lbs. nitrate of soda = 86 lbs. nitrogen	55¾	20⅝	35⅛	**36½**

* In 1885 and since, only 275 lbs. of nitrate of soda.

Sir John Lawes explains his great crops of wheat and barley during the fifty consecutive years, *without any manure of any kind*, by this fact alone : the land was well prepared, perfectly worked, and kept free from weeds.

Almost the same yields of barley, roots, and of rotation-crops, as of wheat were grown; only, it was shown that, by the practice of growing crops in rotation much less manure was needed to produce much greater yields, and that hoed-crops rendered much less labour necessary to keep the land free from weeds; as the following table shows:

CONTINUOUS CROPS OF BARLEY DURING 40 YEARS (1852-1891.)

TABLE VII.

DESCRIPTION OF MANURES. QUANTITIES TO THE ACRE (1⅛ ARPENT.)	Two best years. 1854	Two best years. 1857	Two worst years. 1879	Two worst years. 1887	Average of 40 years.
CLEAN GRAIN.	Bsh *	Bsh *	Bsh *	Bsh *	Bsh *
No manure	35	26⅛	6¼	7½	**16½**
Farm-yard dung 31360 lbs. = Nitrogen 200 lbs., Phosphoric Acid 120 "", Potash 260 ""	56⅜	51¼	36⅜	26	**48⅝**
With mineral manures: Superphosphate 400 lbs., Sulph. of potash 200 "", " " soda 100 "", " " magnesia 100 "" alone.	42	39⅜	7¼	8⅝	**22⅜**
" " " " and 200 lbs. of ammoniacal salts = 43 lbs. of nitrogen..	60⅝	57⅜	27⅜	22⅝	**43½**
" " " " and 275 lbs. of ammoniacal salts = 43 lbs. of nitrogen..	62¾	14⅞	25½	25½	**45½**
STRAW.	LBS.	LBS.	LBS.	LBS.	LBS.
No manure	2442	1425	.....	648	**1044**
Dung, 31360 lbs. = Nitrogen 200 lbs., Phosphoric Acid 120 "", Potash 240 ""	4171	2849	.....	1842	**3247**
With mineral manures: Superphosphate 400 lbs., Sulph. of potash 200 "", " " soda 100 "", " " magnesia 100 "" alone.	2595	1920	.....	630	**1279**
" " " " and 200 lbs. of ammoniacal salts = 42 lbs. of nitrogen..	4530	3120	.....	1705	**2904**
" " " " and 275 lbs. of ammoniacal salts = 43 lbs. of nitrogen..	5487	4157	.....	2023	**3186**
TOTAL—GRAIN AND STRAW.					
No manure	4405	2878	.....	1043	**1976**
Dung, 31360 lbs. = Nitrogen 200 lbs., Phosphoric Acid 120 "", Potash 240 ""	7298	5564	.....	3294	**6015**
With mineral manures: Superphosphate 400 lbs., Sulph. of potash 200 "", " " soda 100 "", " " magnesia 100 "" alone.	4969	4111	.....	1088	**2530**
" " " " and 200 lbs. of ammoniacal salts = 43 lbs. of nitrogen..	7958	6336	.....	2919	**5365**
" " " " and 275 lbs. of ammoniacal salts = 43 lbs. of nitrogen..	9026	7734	.....	3455	**5761**

* The weight of the barley varied, according to the quantity and the sort of manure, and the season, from 51 to 54.8 pounds a bushel, the complete manure, with the sulphate of ammonia added, producing the heaviest grain.

FOUR YEARS' ROTATION AND SUCCESSIVE CROPS COMPARED.

AVERAGE CROPS DURING 32 YEARS (1852-1883.)

TABLE VIII.

DESCRIPTION OF CROPS.	WITHOUT MANURE.					WITH PHOSPHORIC ACID.					WITH COMPLETE MANURE.				
	Dry matters.	Azote.	Phosphoric Acid.	Potash.	Lime.	Dry matters.	Azote.	Phosphoric Acid.	Potash.	Lime.	Dry matters.	Azote.	Phosphoric Acid.	Potash.	Lime.
	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.	lbs.
TURNIPS.															
Rotation ..... roots...	228	5.8	0.77	3.04	.....	1631	26.8	7.68	21.67	.....	3128	66.7	17.02	67.99	.....
Rotation ..... leaves..	49	1.8	0.25	0.95	.....	176	6.5	1.44	2.96	.....	355	13.9	3.17	10.32	.....
TOTAL.....	277	7.6	1.02	3.99	.....	1807	33.3	9.12	24.63	.....	3483	80 6	20.19	78.31	.....
Successive Crops.. roots...	236	6.8	0.88	3.48	.....	945	13.6	4.14	12.08	.....	1976	40.1	9.91	39.51	.....
Successive Crops.. leaves..	49	2.0	0.25	0.94	.....	142	5.8	1.16	2.38	.....	345	14.1	3.07	9.98	.....
TOTAL.....	285	8.8	1.13	4.42	.....	1087	19.4	5.30	14.46	.....	2221	54.2	12.98	49.49	.....
BARLEY.															
Rotation..... grain..	1489	23.0	11.59	8.38	.....	1294	17.8	11.91	7.85	.....	1987	30.7	18.63	12.52	.....
Rotation..... straw ..	1647	7.4	2.03	11.81	.....	1355	5.7	1.85	9.50	.....	2129	10.0	2.96	18.97	.....
TOTAL.....	3136	30.4	13.62	20.19	.....	2649	23.5	13.76	17.35	.....	4116	40.7	21.59	31.49	.....
Successive Crops.. grain...	875	13.5	6.95	5.03	.....	1128	15.5	10.00	6.59	.....	2298	35.2	21.31	14.32	.....
Successive Crops.. straw .	947	4.2	1.10	6.45	....	1052	4.5	1.33	7.03	.....	2489	11.4	3.30	21.00	.....
TOTAL.....	1822	17.7	8.05	11.48	.....	2180	20.0	11.33	13.62	.....	4787	46.6	24.61	35.32	.....

FALL WHEAT.															
Rotation { grain	1308	23.7	11.18	8.08	.....	1514	25.3	14.23	9.39	.....	1740	30.1	16 50	10.82	.....
Rotation { straw	2296	9.1	2.73	17.94	.....	2513	10.5	3.75	19.14	.....	3137	13.6	5.46	27.47	.....
TOTAL	3064	32.8	13.91	26.02	.....	4027	35.9	17.98	28.53	.....	4877	43.7	21.96	38.29	.....
Successive cropping { grain	647	11.6	6.45	4.45	.....	766	13.9	7.99	5.27	.....	1238	23.9	12.40	8.12	.....
Successive cropping { straw	1082	5.4	1.27	8.49	.....	1204	5.9	1.88	10.00	.....	2142	10.1	3.62	18.81	.....
TOTAL	1729	17.0	7.72	12.94	.....	1970	19.8	9.87	15.27	.....	3380	34.0	16.02	26.93	.....
HORSE-BEANS.															
Rotation { grain	631	27.5	5.15	7.26	1.15	640	30.4	6.81	7.35	1.10	1147	49.6	11.49	15.20	2.10
Rotation { straw	879	9.4	1.17	2.87	14.61	978	10.1	1.78	3.47	17.58	1487	14.0	1.99	6.96	24.47
TOTAL	1510	36.9	6.32	10.13	15.76	1618	40.5	8.59	10.82	18.68	2624	63.6	13.48	22.16	26.57
Successive cropping { grain	234	9.7	2.11	2.98	0.47	265	10.5	3.16	3.46	0.52	581	21.4	6.75	8.94	1.24
Successive cropping { straw	423	4.6	0.63	1.54	7.85	524	5.5	0.95	1.82	9.36	799	7.1	1.24	4.33	15.08
TOTAL	656	14.3	2.74	4.52	8.32	789	16.0	4.11	5.28	9.88	1380	28.5	7.99	13.27	16.32
Clover-hay	2309	55.0	8.04	34.18	67.84	4717	124.5	20.30	52.63	158.62	6714	167.0	31.09	123.12	181.75

TABLE IX.

COMPARATIVE TABLE.

OF THE AVERAGE QUANTITIES OF DRY MATTER PER ACRE IN THE ROTATION AND SUCCESSIVE CROPS RESPECTIVELY.

FROM 1852 TO 1883—32 YEARS.

DESCRIPTION OF THE GROPS.	WITHOUT MANURE.				WITH SUPERPHOSPHATE ONLY.				WITH COMPLETE MANURE.			
	Crops.		*Extra*		*Crops.*		*Extra.*		*Crops.*		*Extra.*	
	rotation.	continuous.	R.	C.	rotation.	continuous.	R.	C.	rotation.	continuous.	R.	C
Swedes ... roots	228	236	.....	8	1631	945	686	....	3128	1876	1252	....
Swedes ... leaves	49	49	.....	0	176	142	34	....	355	345	10	....
Total	277	285	.....	8	1807	1087	720	....	3483	2221	1262	...
Barley ... grain	1489	875	614	....	1294	1128	166	....	1987	2298	.....	311
Barley ... straw	1647	947	700	....	1356	1052	304	....	2129	2489	.....	360
Total	3136	1822	1314	....	2649	2180	469	....	4116	4787	.....	671
Fall Wheat ... grain	1368	647	721	....	1514	766	748	....	1740	1238	502	....
Fall Wheat ... straw	2296	1082	1214	....	2513	1204	1309	....	3137	2142	995	...
Total	3664	1729	1835	....	4027	1979	2057	....	4877	3380	1497	...
Horse-beans ... grain	631	234	397	....	640	265	375	....	1147	581	566	...
Horse-beans ... straw	879	422	457	....	978	524	454	....	1487	799	688	.
Total	1510	656	854	....	1618	789	829	....	2634	1380	1254	...

We see by this table that, with the exception of the swedes, without any manure, the yield of which is a mere trifle, the rotation crops are at least one-half greater than the successive crops on the same land, and that with the same cultivation and manure. Nevertheless, barley, with a yearly dose of complete manure, in the successive crops, gave more. This fact is explained by the great appetite barley has for manure, the rotation crops receiving the manure all at once, in the hoed-crop year.

COMMERCIAL MANURE.

There is one fact, completely confirmed by the experiments of Sir John Lawes, that will probably surprise most of my readers, and which proves the correctness of the views of my friend, the Curé of St. Leonard, as opposed by some who, very

recently, were inclined to doubt his veracity, as to the effects of commercial manures. Sir John Lawes shows that, one year with another for 50 years, and now as well as formerly, he obtained and still obtains, after 50 years of cropping, about the same yield with commercial manures as with large dressings of the best dung. And if there is any difference, it is more frequently in favour of the crops grown with commercial manures, provided always that the land contains sufficient *humus*.

It results then from these demonstrations that the farmer should take the greatest care of his dung, and get as much good out of it as possible, but, that being done, if he does not desire to restrict the yield of his land to the poor one-third or one-fourth of the crop it would give when unmanured, he must use lime, ashes, or some other cheap form of potash, together with phosphoric acid.

Mineral Manures.

These three mineral manures, phosphoric acid, potash, and lime, are not expensive, and they are the only indispensable manures for clover and all other liguminous plants. Besides, by adding a little of these mineral manures to the farm-yard dung, its influence will certainly be doubled, and a much greater extent of land can be properly manured every year. As I said, these mineral manures, lime, potash, and soluble phosphoric acid are not costly. They can now be had in abundance in the province, and if we fearlessly employ them, we shall see our crops everywhere yielding twice and thrice as much as they yield now. Of course, I am speaking of the more or less worn out farms, which, unmanured, no longer give full crops. Besides, those farms, once so prolific, which used to yield largely of wheat, barley, oats, peas, &c., and that without any manure, at all, have become very scarce indeed in any of the old-settled parishes of the province!

Conclusion.

But, I am detaining you too long, gentlemen. My intention was not to read you a whole course of agriculture, but to show you how to proceed in making your farming more profitable. I aimed especially at interesting you keenly in this great social question: the improvement of the farming of our province.

Dairying, our only Lifeboat.

When, in 1881, some earnest persons established our Dairymen's Association; when they showed the importance that which, in our province, this new industry could effect, people raised a great clamor about it, especially when mention was made of the millions of dollars that we hoped by this means to gain for trade and agriculture. The future showed we were right. We, by this trade, won twice and thrice as much as we expected. But, now, comes another utterly different problem; one that is

intimately connected with the success of dairying. Not six months ago, several notable persons, men actuated by the best motives, assured us that this self-same industry was, almost entirely, our sole life-boat as regards agriculture. But they were greatly mistaken.

The Export of Fresh Meat.

Here, all of a sudden, a novel horizon, especially for us of the province of Quebec, opens itself to us; prospects of agricultural, manufacturing, commercial progress of the greatest importance. Since Australia—as was first noted, very recently, by two Quebec newspapers—since Australia has found means to export profitably to Britain, across the hot water of the Equator and the Tropics, a distance four or five times as great as we are from the English market; to send, I say, in a fresh condition, not only dairy-products, but her lambs, fresh meat of all kinds, even the rabbits whose marvellous fecundity used to menace with destruction all the products of her land,—since Australia has succeeded, before our astonished eyes in this enterprise, thereby securing an annual net profit to her farmers of several millions of pounds sterling, why cannot Canada, and especially the province and port of Quebec, do as much? Why not, indeed? since we enjoy advantages incomparably superior to those of the Australasian colonies?

The Need of Refrigerators.

This season we have had an abundant harvest. What did we see? We saw enormous quantities of food of the best quality, sold for low prices, even wasted, for want of modern refrigerators to hold them in safe keeping. And the same thing that happened this season, is repeated every year that Providence blesses the work of our farmers. And while our farmers are thus, for want of a good market, losing a large part of their profits; what is happening in the countries with which we are in constant communication; which steam enables us to reach in a few days?

There, gentlemen, millions of men, women and children are absolutely debarred from enjoying the very food that is sold here for next to nothing, or even thrown away. And why? Because the same goods are very scarce there, and sell for prices that their poverty prevents them from paying. Have you any idea how much it would cost to preserve our meats, &c., in perfection, to send them to Europe for sale? About 1¼ cents a pound! Do you think the English working-man would live any longer upon bread and cheese alone, for the latter of which he pays fifteen cents a pound, if he could get our best meats at 10 or 12 cents? And, at such a price, would there not be sufficient margin of profit to justify us in increasing our production to many times its present extent? Surely, gentlemen, the farmer would then have no reason to complain, if he sells at a profit the products of his fields, transmuted into the form of butter, cheese, meat of every kind, fat poultry, new-laid eggs, &c., &c.?

Again, if Australia has freighted several large steamers, every year, fitted up with perfect arrangements for refrigerating, and this for a voyage of about 40 days, have I not right to say that this same trade gives us the finest expectations for the future; especially to us of the port of Quebec, whose waters, cooled by the ice of the North, will immensely facilitate the freightage of these same exports.

Domestic Economy.

I referred just now to certain domestic manufactures: the production of butter, poultry, eggs, &c., which will be greatly benefited by the adoption of the new system. Allow me to mention here, casually, a very recent plan, one that promises, in a very short time, to bring about a most fortunate change in our farming. It concerns the thorough and finished education of the class, the most respected, most important, the most admired, even by our rural peasantry, class,—the class of young girls, the future instructresses of the children of our towns and country parts, the mothers of the Christian families of our agricultural population.

And, here, let us acknowledge, with respect and gratitude, the admirable work of the Rev. Ladies of the Ursulines of Roberval. May they have many imitators, and, before long, may the majority of our country schools teach their pupils, as these ladies are now teaching theirs, how to become useful members of society, as well as how to prepare themselves to become the happiness and blessing of those with whom they are destined to pass their lives. Need I ask if we wish complete success for this new and perfect system of education?

How to Take Possession of the Soil.

Lastly. allow me to repeat, in my turn, a most valuable counsel, which we have heard many times: "Canadians, take possession of the soil!" Yes, indeed, let us take possession of the soil, but with courage, intelligence, and conviction. Let us do here, what is done by the leading classes in every well organised country. Let us have, for our own use, at least a small piece of ground, to which we may devote our leisure, and from which we may derive health, strength, and the finest of all pleasures. Yes, indeed, let us take possession of the soil.

How to Improve Our Agricultural Organisation.

Let a perfect education, adapted to our resources and needs, enable our sons to make farming flourish anew. Let our country parts, impoverished by a general and alarming emigration, be re-peopled by a better educated generation, making agriculture a perfectly profitable art and trade. Let the organisation of our rural districts go on from improvement to improvement, by their farmers' clubs, their farmers' syndicates, by their representatives perfectly prepared, by earnest study,

to promote invariably and to defend when needed, the most precious interests of agriculture and colonization. Let the farmers' *comitia*, where annually the wisest minds, the most earnest devotion of a whole district, organise, in future, in permanency, in order that the needs of agriculture and colonisation, so great so important, be studied thoroughly, with a view to the rapid discovery of the best means of providing for their requirements.

Let Us Be, Either Farmers, or the Friends of the Farmer.

In conclusion, I assert that the prosperity of the province insists that we be either farmers in our own persons, or the earnest, the devoted friends of the farmer. Our national future, gentlemen, depends—need I affirm it ?—on the more or less solid prosperity which we unitedly give to agriculture; on the more or less of intelligent education that our rural population combine with persevering, obstinate labour both of head and hand ; on the more or less wise economy brought to bear on the daily management of our domestic affairs, both rural and national.

Let Us Imitate those Heroes, Our Ancestors !

Let us not forget what our fathers were: earnest (1) workers, Christians firm in faith, true heroes. Neither let us forget that they left France charged with a mission from Providence; we cannot doubt it. They carried this great, this beneficent news to an entire continent. Would we be sons worthy of such fathers, let us accept bravely, loyally, the splendid duty imposed upon us—*Gesta* Dei per Francos—in America, even if not in a new France.

Our Agricultural Missioners.

I feel, Messieurs les missionaires agricoles, that I must, last of all, address you in particular; you who have been selected by the Bishops of the Civil Province of Quebec, and specially entrusted with a providential mission in the hard times we are now passing through. Their Lordships, in their admirable collective charge, dated, " Epiphany, 1894," called upon you to develop, as far as in you lay, a work of public charity, the needs of which are of pressing importance. You undertook to vulgarize and cause to be loved the teachings of both the science and practice of agriculture. By favouring as much as possible the establishment of high agricultural instruction in our rural districts, you will soon arrive at results of the most encouraging nature. As the final consequence of your devotion and labours, you will enjoy the lofty satisfaction of having continued, while extending it, the truly patriotic work of the clergy of this province since the origin of the colony. Prov-

(1) *Emérites :* When Roman legionaries had served their full time, they were classed by themselves, and designated as " Emeriti." A. R. J. F.

idence will doubtless extol your work and show its appreciation of it by restoring productiveness to our worn out farms, by social welfare thus created, by the good example that your addresses cannot fail to produce among our rural population, which will I trust, for many a day retain the old and noble reputation acquired by our ancestors of being *cultivateurs-gentilshommes.* Thus you will soon close the mouths of the too numerous slanderers of our faith in America, of all those who attribute to the religious instruction we receive our want of information and our past failures in agriculture.

From my heart, then, I include with this farewell: May the Almighty bless your labours and our labours too!

The session was then adjourned to the next day.

SESSION OF WEDNESDAY MORNING, DECEMBER 4TH

The President opened the session at 9 a.m.

Mr. J. C. Chapais read the report of the committee on nomination, and invited the members of the association to make, after each name, any remarks or objections that may seem good to them, or to signify their approval.

Report of the Committee of Nomination.

Waterloo, December 3rd, 1895.

The undersigned, members of the committee of nomination of this convention, have the honour to propose the following persons, subject to the approval of this convention, as officers and directors of the Association for the ensuing year, 1896:

Honorary President: Honorable P. B. de LaBruère, Quebec.
President: Abbé T. Montminy, St. Georges de Beauce.
Vice-President: Mr. Sidney A. Fisher, Knowlton.
Secretary-Treasurer: Mr. Emile Castel, St. Hyacinthe.

DIRECTORS:

DISTRICT.	NAMES.	RESIDENCE.
Arthabaska	Messrs. D. O. Bourbeau	Victoriaville.
Beauce	J. de L. Taché	Scott Junction.
Beauharnois	Robert Ness	Howick.
Bedford	H. S. Foster	Knowlton.
Charlevoix and Saguenay	J. D. Guay	Chicoutimi.
Chicoutimi	Jos. Girard, M.P.P.	St. Gédéon, Lake St. John.
Gaspé	L. T. Brodeur	St. Hugues.

DIRECTORS :—*Continued.*

DISTRICT.	NAMES.	RESIDENCE.
Iberville	MICHEL MONAT	Mount Johnson.
Joliette	SAM. CHAGNON	St. Paul l'Ermite.
Kamouraska	J. C. CHAPAIS	Lower St. Denis.
Montmagny	GABRIEL DUMONT	St. Henedine.
Montreal	ALEXIS CHICOINE	St. Mark.
Ottawa	J. A. VAILLANCOURT	Montreal.
Quebec	ED. A. BARNARD	L'Ange-Gardien, Mtcy.
Richelieu	J. L. LEMIRE	La Baie du Febvre.
Rimouski	CHS. PRÉFONTAINE	Isle Verte.
St. Francis	J. A. CAMIRAND	Sherbrooke.

Carried unanimously.

DISCUSSION AND ADOPTION OF THE RESOLUTIONS OFFERED BY MR. ED. A. BARNARD.

Mr. Barnard.—Before reading to you, gentlemen, the resolutions I have prepared as corollaries of the principles I laid before you yesterday evening, as well as in justification of this long scientific statement, allow me to say a few words about the part played by

SCIENCE IN THE CULTIVATION OF THE SOIL.

From the earliest times, among the most distinguished nations of the earth great patriots have been drawn from the ranks of those living in the country. They engaged, first in the pursuit, afterwards in the propagation of the principles that govern agriculture. It was thus that the classical authors, both Greeks and Romans, after having themselves enjoyed the charms of rural life, left, as a heritage to future generations, their *Eclogues* and their *Georgics*.

Then, when the incursions of the Barbarians had covered the whole of Europe with ruin, bands of unassuming monks, skilful and robust workers, brought down blessings on themselves by applying to the art of cultivation enlightened ideas long buried under the oblivion of the ages. Selecting by preference the most inhospitable, even the most inaccessible places, the monks of the mediæval times cleared, slowly and with laborious exertions, a large part of Europe. While practising constantly the most sublime virtues, they recalled to life the lost sciences, among others the arts of drainage, of irrigation, of banking out the sea, of cultivating quicksands (?); in fact, all the great agricultural inventions of past ages. It is thus that, from epoch to epoch, agriculture has always had its investigators and *savans*, among the most distinguished practioners.

Agricultural Chemistry.

To omit all but modern progress, and among other things, the application of chemistry to agriculture, a system, utterly unknown 50 years ago, has been put before us, by which we are now enabled, at a trifling cost to produce, on apparently worn out land, the most abundant crops by means of legumens manured by minerals alone.

Agricultural chemistry, a quite modern science, is making daily progress of the most wonderful kind. It is throwing open, even to the outer world—outside the domain of agriculture—completely new views. In support of this, I may quote the very interesting essay that M. Laflamme, the Rector of Laval University has just published on that savant, that humble Christian, whose recent death caused universal sorrow throughout the whole civilised universe: I mean, of course, Pasteur.

Have you noted, gentlemen, the first foundations of that reputation, so marvellous, so truly universal, which the illustrious savant so justly gained? First, he devoted himself to the study of chemistry, with thorough and conscientious energy. Herein, lay the distinction between him and the numerous *savants* around him, namely, that he sought, above all things, the exact truth.

Before long, the French Government confided to his care an agricultural investigation, for which purpose he had for several years to forsake the laboratory, la vie Parisienne, the universities, and their learned professors, his friends, to lead an entirely new life, among the fields, in search of the solution of one of the innumerable secrets of Nature. His friends were full of solicitude about him. He will take a wrong line, said they; he is in danger of losing his way completely, in devoting himself to the investigation of a low problem of practical agriculture. This humble mission, so despised by the learned, really consisted in the discovery of the cause of the silkworm-disease, and the remedies to be applied for its cure.

Pasteur set to work, with ardour, in the search for several years: no one but God regarding him! And what was the reward of this ceaseless labour? He not only discovered the cause of the disease of the silkworm and its cure, but, as the immediate consequence of his researches, he found out the *germ of life* in ferments of every kind; the ferments of bread, wine, beer, cider, &c. Before long, by means of his different *cultures*, he showed under the microscope,—made them, so to speak, perceptible to the touch—the germs of the most terrible and ungovernable diseases, such as the anthrax, hydrophobia, &c., and shortly afterwards, he brought into the full light of day, the *elements of life*, that the Creator of the universe bestowed on the world, from its original foundation, with which to combat and mitigate, if not entirely to eradicate, these very diseases.

Is not this, gentlemen, the same thing as to say that the success of Nature, or more properly, the laws of Providence, are intimately associated with agriculture? And does it not show how worthy agricultural science is to occupy a place in the minds of the most intellectual, the most splendidly endowed of men?

A word, now, about

AGRICULTURAL SCIENCE IN THE PROVINCE OF QUEBEC.

It cannot be denied that the French clergy and friars, as well as the educated laity that accompanied our forefathers into this country, were, as regards the majority, men well acquainted with farming. As a proof, I may cite the fine orchards of the slopes of Beaupré, of the parishes on the south of the St. Lawrence, the Isle of Orleans, &c., many of which still yield good crops, after more than a century of treatment more or less imperfect. We also know that the gardens round the presbyteries, monasteries, seignorial manors, &c., yielded abundantly, up to the time of the *cession*, all the early vegetables then known in France. I have seen, in many parishes, Chasselas vines, planted under the French régime, that still produce good grapes. Now the Chasselas is not an easy vine to grow; it needs special care, even in the neighbourhood of Paris.

We know too, how prosperous farming was, in spite of the ceaseless wars, with the Indians first, and then with their allies, the English colonists. And the proof of this prosperity is doubled in force by the truly marvellous increase of the handful of heroes, grubbing away boldly with both hands on the mattock, but with loaded muskets at their backs.

Unfortunately for our agriculture, communication with the learned bodies of France ceased almost entirely after the cession of Canada. To complete the trouble, the most prominent educated laymen—up to that time the leaders of the nation—returned to France, many of the French priests accompanying them; so few were left, that those who did not leave us had often the charge of two parishes. Besides this, they often discharged the duties of magistrates, notaries, and if need were, of doctors and schoolmasters. More especially had they to help, to comfort, to encourage the farmers, who were almost utterly ruined by long and tiresome military service; by all the evils that accompany and succeed a merciless war; menaced, above all, by a future most mournful as regarded their hearts as Catholic Frenchmen. For three quarters of a century they had themselves to struggle with all their powers, and, besides, to form and instruct other contestants, to work for the preservation and continuance of what is the dearest to us of all things in the world: our religion, our language, our Christian laws.

Under these circumstances, gentlemen, is it surprising that the science of agriculture was neglected, even forgotten, during all this period, by our governing classes? It is perfectly true that, for more than a century, farming was completely abandoned to farmers (*aux hommes du métier*). So true is it, that 50 years ago, when I first went to college, I found that the pupils were at once classified according to their talents and their fitness for different occupations. Now, the less clever ones were always set down in this fashion—pardon me if I use the phrases used by the lads—"Oh! that fellow is too great an ass to become a learned man;

he'll have to be a farmer!" The idea of any connection between science and farming was ridiculous to their minds! As for what farming can do for this province of ours, this is what educated men, living in the country, have often said to me, after agricultural lectures at which they had been present: "You are, doubtless, Monsieur, full of zeal; but you seem to forget that

"OUR PROVINCE IS NOT AN AGRICULTURAL COUNTRY!"

What! Our province not an agricultural country? Were these gentlemen not aware that every farm-product of Scotland, Belgium, of the North of France, the most prosperous agricultural countries of Europe, grows here as freely as there, but more rapidly, and costs less to grow? Thank God, Sirs, these prejudices have almost, if not entirely, disappeared, since 1872, when dairying opened a new field of activity to thousands of educated youths; our agricultural lecturers; our teachers and inspectors of dairying; our proprietors and makers of the 1500 creameries and cheeseries established since the above date in the Province. Go, now, and tell certain progressive farmers that agriculture cannot be made to pay here! You will soon hear their reply.

This self-same year, in the immediate vicinity of Quebec, on a farm supposed until lately to be worn out, an advanced farmer grew a crop of wheat of considerable extent, such as is rarely grown anywhere. This advanced farmer, this amateur, I may say this artist in farming, you all know: M. Victor Chateauvert, M.P.P. for Quebec Centre. Honour to him! But he is not the only one, among the most distinguished citizens of this province, who devote their leisure to farming, while at the same time, they enjoy the innumerable pleasures of a country life. I could name several, who are respected and admired by the farmers, and whose crops are already quoted as models of economy and heavy yields.

Thank God, gentlemen, our most distinguished men have at last united to assist the causes of agriculture and colonization to the utmost of their power. Their Lordships, the Bishops of the different ecclesiastical provinces of the country have condescended to join the movement. They have endowed the Province of Quebec with agricultural missioners, whose patriotic and earnest labours have already done much good. Many hundred Farmers' Clubs have been created. Formerly our farmers hardly cared to be spoken to about agriculture. In general, they read no farm papers; but now, most of them read the *Journal d'Agriculture*, and freely adopt its teaching. Compared with the past, we find an immense advance in favor of agriculture, and I note a fresh proof of it in this present distinguished meeting.

Let us go on then, Sirs, hand in hand, and press onward even more earnestly; let us aid agriculture with all our power. Let every one of the educated class devote himself more and more to the study and practice of rural affairs, by joining at once our provincial associations of dairying, fruit-growing, not forgetting the newly established one for the improvement of our public roads—you will allow gentlemen,

that this newly born one is not superfluous—and we shall soon see our old parishes re-peopled; the same farms that hardly supplied the needs of one poor family, will end by providing several families with sufficient, though modest, means of livelihood. Then, when that time has arrived, the sons and daughters of the farmers—instead of deserting the country and becoming servants or labourers, and, too often, the very slaves of the factory-towns—will cause farming to put forth fresh buds in the old parishes, or direct their steps with courage and energy to our new centres of colonisation. Then, it will come to pass, that the true strength of the nation will be found most developed in the possession and intelligent exploitation of the land, insuring thus resolute independence to the greater number, conjoined with a noble and perfect self-reliance. (Cheers!)

The following are the resolutions I have to submit to you:

Resolution 1. Seeing that most of our farms are far from yielding all they could produce, profitably, were they better cultivated;

Seeing that all possible means to destroy weeds and to properly manure the land are not everywhere employed;

Seeing that, too frequently, the plough-furrow is not deep enough to lessen the bad effects of a long drought, or of a superabundance of rain; and, also, that its shallowness prevents the complete utilisation of the manures, which sink into the sub-soil and are finally lost;

Seeing that our heavy lands would pay much better and be more easily worked, if an economical system of draining at a sufficient depth, were adopted;

The Dairymen's Association begs to express a hope that all friends of agriculture in this Province, especially the agricultural missioners, the directors of our farm-schools, lecturers, editors of the Journals, &c., will do all in their power to ensure, as soon as possible, notable progress in these matters, matters that are the more pressing in proportion to their possessing the power of rendering our farming much more remunerative than it now is.

Resolution 2. Seeing that the exhaustion of the soil by the too frequent repetition of the hay and grain crops, all of which are sold in the raw state, has rendered our farms more or less unproductive;

Seeing that farmyard dung, as it is made and preserved in general, cannot alone suffice to restore the fertility of the land, especially in those too numerous pieces of land that have rarely, if ever, been manured since they were cleared.

Seeing that all the authorities on this subject advise us to use four fertilising matters,—which up to the present time have been too often neglected here—either together or separately.

The Dairymen's Association recommends to all those interested the choice of the two following methods, which will permit them to manure their land sufficiently to make it grow very remunerative crops:

First, by the purchase of linseed- or cotton -cake, or any other farinaceous food, suited to the completion of the rations of their cattle, so as to get better milk

and more of it, to feed a larger number of cows more economically and to more profit, and also to obtain thereby a more copious supply of better dung ;

And if this first method shall not suffice for the manuring of all the farms that need it, the Association recommends the employment of lime, potash and phosphoric acid, to be used either conjointly with a smaller dose than usual of dung for grain and legumens, either mixed and used directly for the production of such plants as clover, pease, beans, &c., lentils, vetches, lupins, &c., which leguminous plants will not fail to produce excellent fodder, very rich in nitrogen, and, in their roots, will leave in the land, in addition to the four indispensable manurial matters, a considerable quantity of vegetable matter which will rapidly be converted into humus.

Resolution 3. Seeing that the best means of producing the best butter and cheese economically consists in the erection of large factories, well built, well fitted up, and under good management, as well as in the carriage of milk to them by contract ;

The Dairymen's Association, as represented by the members here present, holds that it is important that means should be adopted as soon as possible to encourage preferentially, and in such a way as to give guarantees for the future, the large factories thus fitted up and managed.

M. J. C. Chapais seconded by *M. Sam. Chagnon*, proposed that the above three resolutions be adopted unanimously.—Carried *nem. con.*

Resolution 4. *Mr. Barnard*—Seeing that improved roads are of vast advantage to the patrons of dairying and to farmers in general, the government of the Province of Quebec is earnestly prayed to amend the municipal code in such a way as to allow the Dairymen's Association, and its delegates, as such (*ès qualité*), the same power to sue as has every individual who sues in his own name.

Gentlemen, this resolution demands explanation. It was prepared last year, and many attempts have already been made with a view to its realisation. The gist of it is to find 40 persons to form themselves into an association to ask from the Government an act of incorporation, with power to compel the municipalities, as an individual can compel them, to keep the roads, in all places and at all times, in good order. In order to start such an association, some expenditure is needed, and for that purpose we must have the aid of those who have at heart the interests of agriculture. We need also active and earnest directors. You may say: "Our Directors have already too much to do." I only ask from them one thing, that is to do what they can. For if we do not find among ourselves some one who will interest himself in this project, experience of the past leads me to fear that we shall not find what we need outside our association. All I ask is that we should be authorised by the law to do what we can do.

The law ought to allow the new association to sue, by one of its directors, any municipality whose roads are in bad order.

M. T. J. A. Marsan—Evidently, the association will begin by asking for the improvement of the roads; but to render its power effective, something more must be done.

The Rev. V. Charest—Am I to understand that the Dairymen's Association is to erect itself into an association for the improvement of the roads, or is it a new body, independent of the Dairymen's Association, that is to seek incorporation?

M. Chapais—No; it is an independent one.

M. Marsan—I was about to ask Mr. Barnard, just now, to explain the working of this association to us.

Mr. Barnard.—I am all the more willing to give M. Marsan the explanation he seeks because I had the intention of asking the meeting to allow me to do so.

Having already, in 1878, begun the formation of a similar association, we had drawn up our constitution. The working of the "Association of good roads," would be about the same as the old one; when the existence of a dangerous spot in any road in a municipality is pointed out to it, whether by the school-master, the road-inspector, or even by the curé, the association would notify the municipality that its road was in very bad order, and that if, in ten days' time, the road was not repaired, the association would proceed against the municipality to oblige it to put the road in order.

The Rev. V. Charest—Would it not be a serious matter to establish an association like this with power to act over the whole Province of Quebec on the sole information of one individual in any parish? How could you notify at the proper time a mayor, or a secretary-treasurer, that such or such a road in the parish was in bad order? Before such a notification could reach the mayor, if the road were really in a dangerous condition, more time might be lost than is needed to cause the death of two or three people.

Mr. Barnard—Of course we do not mean to deprive all the people in the parish of the right to demand that a dangerous road should be repaired. We ask for the association the same right that each individual enjoys under similar circumstances. At present, no one being specially charged with the duty of seeing that the municipal authorities keep their roads in good order; no one having a special mission to compel these bodies to report them; they are, generally, in bad order. When the "Association of good roads" shall have obtained its powers of acting, its secretary, after the ten days notice mentioned above, will be able to sue at once. There would be some one responsible for the cost of the proceedings, which would be a guarantee that they would not be simply vexatious, but that there would be witnesses in a position to prove that the road was in perilous, bad order. The municipality would be notified by the association that such or such a spot in the road was dangerous; that a carriage had been damaged there, or some one hurt there, and that if the road, or the bridge, in question,—if the accident were due to the bad condition of a bridge, —be not repaired within ten days, the Association would prosecute. The notices are printed, there is only to fill in the blanks, and for each notice the secretary receives a dollar, more or less, as an indemnification.

M. Chagnon.—Might not this mode of procedure cause a law-suit in the case of a proprietor refusing to repair his road? We have had a parallel case in the county of

Joliette. Several accidents had happened owing to a hole in that part of the road belonging to Dr. Forest; a man named Mercier narrowly escaped being killed there. He brought his action, and two or three witnesses swore that in that very hole other persons had been upset on the same day as that on which his accident took place. Dr. Forest, producing seven or eight witnesses in court, proved that that part of the road was M. l'avocat Faribault's, and that his own road was in good order. The suit cost from $700 to $800, and M. Mercier lost his cause.

Mr. Barnard.—M. Mercier ought to have sued the corporation, and not a private individual, for the municipalities are responsible for the state of their roads. So, let us make them understand our powers; all that we want is simply to notify them that we are prepared to make the law respected. In our district, it would be very hard to obtain good results by these means. All these appointments or formations of associations would fail to cure this evil in its earlier stage. It is the principle of the laws or regulations belonging to the roads that is in fault. Our roads are boggy, deep in mud, it is almost impossible to keep them in order at all seasons, and it would be useless, and perhaps unjust, to our people. We must then provide for the improvement of our roads by other means, by practical, legal means. It is difficult enough to get fine, hard roads at all times, and I fear that this resolution is not sufficient to enable us to reach that end. We need municipal laws; coercive laws will not succeed, or will with difficulty succeed, in bringing about good results. We know that we want good roads; but we also know that good roads mean taxation, and our folk will not hear of taxation. To succeed in getting them to submit to taxation, to allow the municipalities to do the work of improving the necessary roads, we must first convince the people that it would clearly benefit them, and would save them much money: in their carriages, their horse-keep, their harness, &c. And you will have great difficulty in driving this conviction into the minds of our people. Very few are those who believe that good roads are advantageous; the bulk of the people do not think so. It will take a good deal of talk before this result can be obtained. In the United States this question has been for years under discussion. Some States have passed a law to improve the roads; others have refused to follow their example. In France, did it not take centuries to arrive at the general improvement that now excites the admiration of all foreigners? And what has been its cost?

A thorny question is that of taxation. We know that the saving resulting from good roads is far greater than the cost of their making and subsequent repairs. Some farmers understand this; the progressive ones see the evil and the remedy to be applied to the present state of things; but, as I said, they are not the majority.

It is clear, Gentlemen, that I am not extricating you from this difficulty; I am only pointing out the up-hill work before us in our attempt to get good roads all over the province. Doubtless, the means suggested may do some good, because a good example gradually convinces people, but to adopt coercive measures at present would, in my opinion, be a premature step. It might perhaps be wise, too, if we had

the means, to encourage the municipal councils, or private people, who would improve their roads. At St. Jacques l'Achigan, the inhabitants have formed a society and macadamised their roads at the common expense. An excellent example to follow, but, sad to say, it has hardly spread, and progress does not travel rapidly.

M. Castel.—Do you not think, M. Marsan, that the creation of an association for the promotion of good roads would have the same results as the creation of the Dairymen's Association? Since its formation, fifteen years ago, it has undoubtedly made progress; progress has been made under the impetus it has given to this source of our income. It has grouped men together who have at heart the improvement of the industry, and these men, when once they had entered the association, have worked energetically for the common good. Can we not equally look for as devoted members of the association for the improvement of our roads?

M. Chapais.—I feel, Mr. President, that we must work with all our powers for the organisation of a "good roads association." We have before us the example of the United States. Several States of the Union have spent millions on the improvement of their roads. And the results, do you ask? The value of the landed property alongside these good roads has increased 300 per cent! Ontario is also an example to us; a like association was formed three years ago, with excellent results. Should we succeed in forming a similar society and get it incorporated by the Government, with the powers we propose to ask for, we shall be in a position to visit every place, to preach the doctrine of the improvement of our roads, and to drive into the minds of the farmers this idea: the roads must be improved. We shall find men in every municipality who will interest themselves in the cause, who will impart enthusiasm to it, and who, when they become municipal officials, will be in a position to aid in the execution of the law, first, by keeping their own roads in good order, thus setting a good example, and then by their influence as officials of the municipalities; and, in this way, we shall advance. If we make no attempt at improvement, if we lie on our oars, we shall indubitably remain in the rear.

M. Marsan.—It would be desirable, then, to select people capable of pushing on this project.

Mr. Barnard.—My object, in drawing up this resolution, was to cause a discussion on the matter, after having laid down the principle that the duty of labouring in such a cause appears to be more properly entrusted to an association than to individuals. If an association is formed, agreement in working is gained, and the efficiency of the work is in proportion to the talent and good management of the members. One solitary man is utterly unable to gain any good results in such an undertaking as this, and that is the reason why I say: Let us at once found the "Association of Good Roads."

M. J. A. Camirand.—(Sherbrooke) The question of good roads is really important one, even as regards the Dairy trade. We never shall have good roads, until the law which now governs our roads be changed. Says the proverb: "What is everbody's business is nobody's business." The number of those interested in this

question must be limited. The present government of the roads in our Canadian parishes is still worse than that which obtains in the Eastern Townships. In the Canadian parishes. each man has his front-road, which each man manages as he chooses; so that one bit of road is made in one way by one proprietor, and in another way by his neighbour. Last year, I went through part of the parish of la Baie du Febvre. The roads I passed through were the worst I ever saw. With a little trouble, agreement, and intelligence expended, in this fine parish there might be capital roads, and at a less expenditure than that made on the dreadful roads I saw there. Those who live or travel in the Eastern Townships must have seen the work so easily done nowadays by the *Road machines*. Many of my hearers must have seen them in operation, and have noticed the work they do. This work does not cost one-fourth of the sum that the ordinary way of treating road-making costs, and it makes such roads as can never be made by pick or shovel. The hand can never do such work as these machines do.

In some municipalities, they have succeeded so well in the use of them for the construction and repair of the roads, that instead of paying a dollar a head for the work to be done on the roads, only twenty cents are paid and the roads are really excellent. I have travelled along the Hatley roads, and was surprised to see their good condition, and the perfect way in which the ditches drained off the water; these roads were more like a trotting-track than common roads.

In my township, Orford, we adopted, four years ago, the system of road-making with these machines, and our roads now are so completely changed, that even the newspapers compliment us upon them; this is entirely due to these machines. Our machine cost $250.00; I think one could be bought now for $225.00. It takes six good horses to work it, horses weighing from 1200 to 1300 lbs. each; a careful, intelligent man, with some experience in the work, to manage the machine, two drivers, and one or two men to clear away the stones the machine pulls out in its passage. Under these conditions, I start work on a mile of road; on another mile in the same State, you and fifty men with their picks and shovels shall go to work, and at night, I engage that I, with the machine, horses, and men just mentioned, will have done more work, my work be better done, my road be much better shaped, whether rounded or not, in any form you please; I shall, I say, have done four times more work than the fifty men on the other mile of road. The machine acts on the road as the razor acts on the face. Some say that on a road full of stone this machine cannot work, but they are wrong. I have the honour to be mayor of my municipality, and it was I who caused this machine we are now using to be bought. I must confess that when I made the proposition to the municipality that it should be bought, I narrowly escaped hanging. All sorts of objections were raised: they said I was going to ruin the parish, and I had to resort to all kinds of measures to procure funds so as to avoid over-burdening the taxpayers. M. Beaubien granted $300, to be divided between the municipalities of Orford and Magog. The road I proposed to improve lies for about 7 or 8 miles in our munici-

pality, and the rest is in Magog. It had been decided to vote $200 for the adjusting of this road, and to hire the Hatley machine for $50. I asked my council to allow me to buy a machine; "Give me," said I, "the $50 that you propose to pay to Hatley, I will pay them on account of the machine, and the balance can be paid later. After a long discussion, they agreed to this; I paid the $50 on the machine, and it went to work on the road. This road was encumbered with a bush of all kinds of trees up to the very ruts. There were "second growths" of four, five, of even six inches in diameter. All this I had carried off from a width of 20 feet on each side of the ruts, 40 feet cleared in all. I built 19 little bridges (*ponceaux*) in the four or five miles of the improved road, and all this with the government funds, some of which I even handed over as a balance to the municipality; and I made the best and finest road to be seen anywhere. What we did, anyone can do; there is nothing wonderful in it. All that is needed is a trifle of good will on the part of the people, and a man in each municipality to take the thing in hand and carry it out. But we must go to work; if you wait till the work does itself, you will never have good roads. At Orford, it was I who put myself at the head of the movement, with a firm determination to succeed, and there are our roads. Now, all roads cannot be made in this way; for instance, the leading, or "high roads," that receive the traffic of the smaller ones. Such roads, from the heavy loads that often travel over them, always end by being ruined. It is therefore better to macadamise them. This, again, is that which we have done at Orford. What a battle there was when the proposal to macadamise was mooted? But there is no want of stone there, and I told the farmers to draw all the stones from their farms close up to the road. When the time came, we took three miles of road, every season we made 200 to 500 feet of macadam, last year 800 feet, and now we have nearly a mile, and that I can adduce as an example to any part of Quebec Province or even of the entire Dominion. One advantage we had: some gravel. We made what is called "Telford macadam," which is as good as any first-class macadam. First, we lay at bottom a bed of large stones; then a layer of smaller ones; and, on the top, broken stones small enough to pass through a ring about two inches in diameter, finishing with gravel last of all.

This place, where we macadamised the road, had already cost the municipality dear, in trouble if not in money. The council had been sued a dozen times. I am now often asked to make every road in our municipality as our main road is made. We intend to do so everywhere, but of course, in time, as our resources will permit. For that which I have done at home, I must tell you has been done with an expenditure even less than that spent uselessly on the roads during the 25 years previous to the purchase of the machine. Formerly, the repairs of the roads were done by men sent to mend places; the men held a picnic; they went to the spot and filled the holes with mud from the ditch! Quite a different state of things with the machine; work now begins at 7 or 8 o'clock in the morning.

Dr. Grignon.—Will the machine work on hilly bits of the road?

M. Camirand.—Anywhere, if there is enough earth above the rock.

Dr. Grignon.—In *tufa*, too?

M. Camirand.—Yes, even in tufa.

Dr. Grignon.—I suppose the road has to be ploughed up first?

M. Camirand.—By no means; we have never ploughed the roads in our municipality.

Dr. Grignon.—No doubt the stone must be taken up; will the machine work in stony land?

M. Camirand.—Yes, it will. There is no land so hard that it will not work in it; only the very large stones must be removed. I have seen the machine raise stones as big as a pail without the least injury to itself.

In future, our municipality will levy the road-tax in money. Now, it is payable part in money, part in labour. But, in future, it will have to be paid altogether in money, and, the spring arrived, the machine will be set to work. The people will have nothing to do with the roads; the municipality will do the entire work, and the roads will in future be kept up by the municipality and not by individuals.

We have also adopted another system for the high roads (*routes*).(1) The municipality has also taken possession of all the *routes*, and the work on them is done at the public cost like the others. The old method after which the road-work used to be done, was unjust to some individuals. For instance, a man residing five or six miles from a road (*route*), of which he made use perhaps once a year, was compelled to do a great deal of work upon it, in favour of other people who used it without at all contributing to its repair. When the *routes* shall be kept up by the municipalities, in less than five years they will be as good as the principal roads. If the Government would pass a law making this system binding on the whole province, you would find, in a few years, your roads so good that it would surprise you.

Mr. Barnard.—I will now put my resolution to the vote.

M. Chapais, seconded by *M. Taché*, proposed that Mr. Barnard's motion be adopted; carried *nem. con.*

M. Marsan's resolution:—Seeing that the power given by law to the municipal councils to subdivide and apportion the public work of the municipality between the tax-payers, or the ranges or concessions, or parts of the ranges or concessions of these municipalities, is a cause of numerous troubles arising from a failure of justice in the aforesaid apportionments, of the greater expense the system induces, of the imperfect and irregular manner in which the work is done, and therefore of the bad management of the said water-courses, roads, high-roads, bridges, &c., the Dairymen's Association trusts that the Government and the Legislature will be good

(1) The articles 763 of the Municipal Code of Quebec reads thus:—" All the roads (*chemins*) whether local, municipal, or country roads, are either front roads or *routes*. The front-roads are those that go across the lots of a range, and do not lead from range to range, in front or in the rear. All the other municipal *chemins* are *routes*.—E. C.

(2) Impossible to translate the two words into English except thus: The *route* from Montreal to Toronto; the *chemin* is out of repair. Hardly satisfactory!—A.R.J.F.

enough to amend the Municipal Code, so as to place entirely in the hands of the mnnicipality all the labour to be done on the public ways within the limits of the municipality."

M. Castel announced that he had just completed the list of 40 subscribers necessary for the obtaining of the incorporation of the "Good Roads Association."

The President.—I observe, according to the explanations given by M. Camirand, the working of the road-machine costs about $12.00 a day. I should like to know how many *arpents* of road put in good condition this sum represents.

M. Camirand.—We hold that we can manage half a mile a day.

The President.—Among stones?

M. Camirand.—Oh! yes! anywhere. Of course, where there are no stones, in such parishes as Yamaska, we can do a mile a day. To make a really good road, with the machine, the big stones by the side of the ditch must be removed, for you know that the machine works with a knife (*coulter?*), and the big stones that are in the coulter's way must be dislodged: stones weighing as much as 300 pounds sometimes occur. It is true that I have seen the machine eradicate trees six inches in diameter, but we know, of course, that the eradication of trees is not the object for which the machine was made.

The first thing to be done, after the council has fixed upon the spot in which the work is to begin, is to notify the inspectors of divisions that the work is to begin in their division. They take away all the stones on each side of the road, and clear up the ditches properly, so that the machine can do its work with efficiency; for instance, all stones as large as a pail should be removed. The machine must do its work slowly but surely; it must not stop, but keep on constantly, regularly, not by fits and starts, if the work is to be done well and economically. It must not be forgotten that an expenditure of $12 a day is going on. Ditches, much better than those made with shovels, can be dug on farms by this machine. It cuts the sides bevelled, or sloped, in any way you please. I myself have with the machine, after having ploughed the land, made a ditch from one end of my farm to the other, and so well made a ditch I never saw. The mower can work across it, so can the horse-rake, as if there was nothing there at all, so perfectly are the sides shaped.

Mr. H. S. Foster.—(in English). It seems to me that this association cannot do better than to ask the Government to buy a certain number of these machines for distribution, at cost price, among the municipalities. Once introduced, their usage will soon become general. Should the Government accept this plan, it will bring about more rapidly than by any other plan, the general use of this machine.

Mr. Robert Ness.—(in English). I was glad to hear all that M. Camirand has just told us about this road-machine. Every parish in our county has one, and I think we ought to be able to depend upon ourselves without running to Government for help in this matter. I think every municipality in this province can afford to

buy a machine, so as to be its absolute owner; for absolute ownership will ensure their being cared for properly and, therefore, their longevity.

Mr. Foster.—(in English) All I ask is that the Government should put these machines at the disposal of the municipalities at cost price. By buying them wholesale, the Government could get them cheaper than a solitary municipality could.

Mr. Ness.—(in English). The Government has plenty to do already, and we ought to leave it at peace, without bothering it about such a thing as this.

A machine costs $150. In our parish, we adopted the system generally followed in the French counties, i.e., every proprietor has to keep in order the road in front of his land; but we take good care that the law be put in force, and if anyone neglects to attend to his road, we compel him to do his duty. The Council adopted this system; it bought a machine at our expense; it is not so difficult to work that a neophyte cannot make it operate properly. All it needs is two men who can guide it. Each farmer furnishes his team. How are the teams supplied in your municipality, M. Camirand ?

M. Camirand.—(in English.) We tried to employ everybody's team, but that we found to be a loss of time; some teams would not work with other teams; so we had to hunt about for conformable teams, and that caused great loss of time; so we at once came to the conclusion that we must stop that, must hire three good teams, that would work well together; engage men who thoroughly understood the job; do the work ourselves, and do it well.

Mr. Ness.—(in English.) But farmers in general have a lot of teams lying idle that could just as well be doing this work. With our machine we do three miles of road a day, or at least two miles, and we use our own teams that otherwise would be in the stable eating their heads off, and we have men able to drive them. So we have no money to pay out, which is what I like, and what everybody likes.

Mr. Barnard.—(in English.) You, Mr. Ness, in your district have plenty of heavy draught horses; in M. Camirand's parish there are many trotters but few Clydes.

Mr. Ness.—(in English.) That is true; we have Clydes in abundance.

M. Plamondon.—(in English.) I have often passed through Mr. Ness' village, and I noticed there about four miles of the best road I ever saw. It might be taken for a plank-road; and yet they follow the system there of making everyone look after his front road.

M. Camirand.—(in English.) Of course, in speaking of only making a half-mile of road a day, I mean a road that has never been previously made. If you only had to polish up the road, a half mile would not be much; the difficulty lies in starting to make a good road out of a bad one. With the present way of road-making, there are often dangerous ditches. The machine makes capital ditches; it makes the road eighteen inches higher in the middle than the ditches. In winter, ditches two feet and more deep are hazardous; for one is very likely to fall, horse, carriage, and all, into them, and that is not pleasant.

Mr Barnard.—M. Castel having collected the 40 subscriptions necessary for the founding of the "Good Roads Association," I propose, to avoid loss of time, to nominate the Provisional Board of Directors at once. M. Camirand will, I think, make a good president, and we have two friends here, the Revs. MM. Charest and Richard, who interest themselves greatly in the question. These two, with Messrs. Ness, Guay, Dr. Grignon and Barnard, would do for the Provisional Board, with Mr. Dallaire as secretary. The promoters of the bill will be Messrs. Macdonald and Girard, very active friends of ours, and both of them directors of our Dairymen's Association.—*Carried unanimously*.

Resolution. 5. Seeing that the formation of co-operative associations with unlimited responsibility would be of great service to agriculture by enabling farmers to: 1. Improve the present creameries and factories, or to erect better ones; 2. To buy, or to obtain on the best terms, everything they need for their own use, or for their crops;

The Dairymen's Association trusts that the general laws governing such associations be, if necessary, amended, in order to permit farmers to organise themselves into such societies, so as to profit as largely as possible by the numerous advantages similar associations would afford them.—*Carried*.

Resolution 6. Seeing that those trans-atlantic steamers that are provided with the best system of refrigerators enable those living in tropical countries to send to England, with profit, not only butter, but other perishable goods, such as fruit, fresh meat, game, etc.;

The Dairymen's Association trusts that the Dominion Government will take steps, as soon as possible to provide Canada with a system that is now endowing with wealth Australia and other countries much further from England than we are.

You will be perhaps surprised to hear, gentlemen, that certain English colonies, five times as far as we are from the English market; colonies that have to send their goods across the equator and the tropics; colonies not nearly so wealthy as Canada, have succeeded in sending meat to England, even rabbits! These beasts, I hear were devouring the crops, and large sums had been vainly expended in trying to destroy them. Then, the idea was formed to establish a system of refrigerator-vessels, to enable the people to send meat to England; and this has been done, with profit, during several past years. Mutton, too, is being sent from these colonies to England. And we, we who are much nearer Britain than they; we, who very soon shall be able to cross the Atlantic in six days; cannot we do that, which Australia has done? I cannot admit the impossibility; and I would suggest, gentlemen, that the Association come to the front in this matter, and show foreign countries that not only have we butter and cheese to send to England, but meat as well.

There is plenty of room for our meat in Europe, notably in England. Here, the artisan eats meat every day; there, he only eats it, at most, once a week on account of its high price. And if rabbits can be carried thither across the tropics, arriving in good condition, why cannot we, who have only a short voyage over cold

water, send a good quarter of fresh pork, of beef, or of mutton. Resolution 6 was carried.

Resolution 7. Seeing that the Dairymen's Association rendered last year, and may render from year to year, notable service to its members and to the agricultural public in general, by carefully organising district *comitia*, at whose meetings erudite lecturers, local men as well as visitors, will be charged with the duty of promoting the most pressing of the interests of agriculture, and to show what means must be taken to expedite its progress ;

This Association trusts that these district *comitia* will be in future organised in a regular system by the directors of this Association, and that they be enjoined to ensure the kindly aid of the Government of this province, of the clergy, and, in general, of all friends of agriculture, with a view to ensure the complete success of these *comitia*.

Mr. Chapais requested that the carrying of this resolution should be postponed until he had finished his lecture on

THE DAIRY-COMITIA OF 1895.

LECTURE BY MR. J. C. CHAPAIS.

GENTLEMEN,—

The *dairy-comitia*, held under the auspices of our Association, during the winter of 1895, will form, to-day, the subject of my address. As you know, the object of these meetings was to discuss and endeavour to forward, in the interest of dairying, which has become the national industry of the province of Quebec, the following principles, to wit :

That the PATRONS must all take proper care of their milk ; i.e., it must be properly strained, aerated in a pure atmosphere, and cooled. All milk that is sour, or that has a bad smell, should be pertinaciously rejected.

That the MAKERS reserve to themselves the right, if responsibility for their work be imposed upon them, to refuse all milk that is unfit for the making of a good article that is like to redound to our credit on the English market; that they engage to manufacture more with regard to quality than to the obtaining of a weight of cheese in excess of the average yield of factories in general ; that the same makers, while accepting responsibility for their own make, decline responsibility for others, and insist that their cheese be accepted at their factory, so as to limit their responsibility to the time in which they themselves have their cheese under their own control.

That the *Directors of Factories* pass resolutions authorising the maker, and even making it his duty. to reject all milk that is sour, unsound, or of bad smell, and only hold him responsible for his own personal errors during the time in which the cheese is under his control in the factory; that they never sell unripe cheese, and refuse

even offers from buyers ready to accept delivery of too fresh cheese ; and that, in the delivery of cheese at the factory, they seek for a remedy for all these disputes that result from the present system, namely, the selling always cheese of the best quality subject to inspection at Montreal ; the patrons, it is true, have suffered less by this system than the poor makers, who, up to the present time, alone bear the penalty of a "cut in price," as if the cheese could only be damaged by them during the process of manufacture. The would-be pretext of saving the reputation of the maker is only the source of ruin for him, who, supposed in the eyes of the patrons to be a first-rate workman, cannot but compromise himself in their opinion were he to ask for a visit from an expert with a view to the improvement of his defective method ; so he often continues to make inferior cheese during a whole season,—that "French" or "Joseph"—which injures our reputation, and will end in closing the market to our goods the very first time there happens to be an over-supply.

In this system, the maker settles the price with the dealer privately, and the patrons are too often unaware that their maker has turned out bad cheese ; were the cheese *bought at the factory, according to its quality*, there would be in this an element of improvement for the maker, whom the patrons, while still holding him responsible for his make, might compel either to do better or to resign his situation.

That the BUYERS be asked to consider seriously the part that they, in their own interest, and in the interest of our provincial trade, can and even ought to take in the improvement of our dairy-products ; they ought never to accept delivery of cheese before it has sufficiently mature in the factory ; let them buy as soon as they choose, if they think it an advantage, but they should not accept delivery or authorise the despatch of the cheese until its proper age has arrived ; let them show that they value good cheese a little more, and that they are ready to pay a higher price for such than for cheese of inferior quality ; the fact of paying the same or nearly the same price for moist cheese acts as a premium, and encourages too often the makers to work for great yields, and thus to make an article that will compromise not only their own trade but our national industry.

Let SYNDICATES be encouraged, as the only sure means of arriving at uniformity of the best quality ; up to the present time, their action has been embarrassed by the want of distinction in quality, a reproach we just now made to the buyers, the makers frequently refusing to follow the advice of the inspectors, under the pretext that by making an inferior article they got as good a price and made more of it out of a certain quantity of milk.

Lastly, as to the BUTTER TRADE, that it would be advisable to place butter on the English market under the better conditions ; that provision be made for refrigerating compartments on steamers, and that regular shipments of fresh butter be made weekly, so that our butter may reach the English consumer in all its freshness, the disfavour it still encounters on that market being derived especially from the fact that, up to the present time, butter was only exported after having passed the summer in storage at Montreal, and thus only reached the consumer several months

after making, in a more or less off-flavour condition, which made it hopeless for it to gain the price of table-butter, and relegated it to the rank of cooking butters.

The comitia, too, enjoyed the advantage of listening to a detailed report of the tour of Messrs. Gigault and Leclair through England, Denmark and France, with a view to the development of our relations with foreign markets for our farm products.

These comitia, 19 in number, were held at Granby, Lachute, St. Jérôme de Terrebonne, Ste. Martine, Vaudreuil, Belœil, Rimouski, Ste. Anne La Pocatière, Roberval, St. Jérôme du Lac St. Jean, Chicoutimi, St. Jean d'Iberville, Sorel, Joliette, Nicolet, Arthabaska, Richmond, Sherbrooke. The lecturers who took part in them were the Rev. Messrs. Côté, Secors, and Reid, Messrs. Fisher, Tyler, Dallaire, Coulombe, Macfarlane, Grignon, Bourbeau, Castel and Chapais, besides a number of local speakers, priests, members of parliament, Directors of the Dairymen's Association, etc.

The first comitia was held in your district, Bedford, at Granby. As for this district, I am sure the proper management of its syndicates will not be neglected, for their superintendence is entrusted to devoted friends. The first syndicate was formed here, in 1891, by Mr. Foster. He "beat the march," and his example had a good effect. This syndicate now has thirty-seven associates. You will find by this how well his good example has been followed. Progress here has been marvellous. The district won the first prizes at our exhibitions, and proved its equality in production with Ontario. Mr. Fisher, too, has worked most energetically for the improvement of dairying in these parts. He is our Vice-President, and the progress made in dairying in this district is in great measure due to the constant efforts and intelligent labour of these two indefatigable friends of farm and dairy.

The second comitia, held at Lachute. Dr. Christie and Mr. Owens warmly congratulated the Dairymen's Association on the work it had undertaken in holding this meeting. This district is in charge of one of the best inspectors of syndicates we have.

One of the most important meetings was that held at St. Jérôme de Terrebonne. It was got up by Dr. Grignon, who took the chair, and almost all the clergy of the district were present. The attendance at the sessions was large ; never fewer than 400 being present, and we had to hold supplementary meetings, so great was the interest taken there in dairying. In justice to Dr. Grignon, I must say that if, in this district, we met with so much enthusiasm and interest, it was thanks to his constant efforts ; he has always been devoted to our cause, to the injury of his own interests. M. Jos. Girouard, M.P for Two-Mountains, proposed thanks to the Quebec Government for having organised these meetings.

At Ste. Martine, Châteauguay, the comitia was under the direction of Mr. Ness, to whom its success was chiefly due. Mr. Ness is one of our directors. He informed us that the numerous audience there was composed of French-Canadians who, in these parts, rarely attended agricultural meetings as they were held in English.

Our next visit was made to Vaudreuil. There we had a valuable testimony from

the members for the counties of Soulanges and Vaudreuil. In some very few places, and among still fewer people, it is supposed that dairying is made an affair of politics. These two members told us, at the Vaudreuil meeting, that it was absolutely untrue; that if our labours could be in any way called political, it would be the politics of agriculture that were concerned, and thus our politics could be endorsed by both parties.

Thence, we went to Belœil. There, they send milk to Montreal, and, unfortunately, sell too much of their hay-crop. Still, we found the milk-sellers very willing to listen to us. They begin to see that their trade is not so remunerative as it used to be, and the hay-dealers say they have nearly ruined their farms; so they are inclined to follow our trade instead.

After Belœil, we went to Rimouski, where we were hospitably treated at the College, and where the Seminarists were good enough to place their hall at our disposal for the meetings. This district, in spite of its being so far away, had the advantage of having one of the first factories ever established. It was established, in 1884, at St. Fabien, and when I visited it, I found it to be one of the model-factories of the province. The example was set in this place by the Rev. M. Audet. There, there was great need of syndicates. After our meetings, we were requested to do our best to get one up, and we succeeded in doing so. This is one of the best districts for dairying, and no other business can pay the farmer. Owing to the hilly face of the country, sheep feeding could be profitably joined to dairying. The farmers have, besides, immense resources for the production of abundant food for their cows. Excellent manures abound here in the form of sea weed and capeling. [1]

These are capital manures; their composition is, as follows, compared with farmyard dung:

	Capeling.	Varech.	Dung.
Nitrogen	2.34	0.37	0.48
Phosphoric acid	1.70	0.26	0.32
Potash	0.40	0.62	0.43

The Rimouski farms, with their manures, can grow potatoes, which are excellent food for cows. I hope that, when they read the Society's report, their attention will be drawn to this.

From Rimouski, we went to Ste. Anne La Pocatière, Kamouraska. There again we were allowed to hold our meeting in the College Hall. Mgr. Bégin was good enough to begin the day with a Pontifical Mass, at which nearly all the farmers in the neighbourhood were present. At the evening session, there were from 700 to 800 people. There were no syndicates in this district when we got there, but, after we left, one was formed.

[1] Sea-weed, *varech*, is the "wrack" Prospero speaks of in the lines:

> "And, like the baseless fabric of a vision,
> Leave not a wrack behind."—*The Tempest.*

In Kamouraska and Rimouski, we remarked with pleasure a point of great importance to the dairy-trade; there are a great many Canadian cows in those parts In mentioning this excellent little cow, I am constrained to observe that, in some quarters, it has been asserted that, at the Ste. Anne La Pocatierè meeting, I said that the Canadian cow was only fit for small farmers, who had no means of keeping other cows; but that those who could keep other cows had better get rid of their Canadians. The great number of farmers, who heard me loud in my praises of the Canadian cows in all my lectures, need not any assurance from me that I deny absolutely ever having spoken against her.

We next visited the district of Lac St. Jean and Chicoutimi. Every time I go there, it is always a renewed pleasure to me, for I know that I am visiting one of our most advanced districts. Moreover, our Association has the advantage of possessing there two of its most eminent members—Messrs. Guay and Girard.

In very truth, all those of us who had been through the district of Lac St. Jean and Chicoutimi, in 1880, were astonished at the wonderful progress that has been made since that date. We held meetings at Roberval and Chambord, but the climax of our visit in the district was one held at Chicoutimi, for there we had a meeting of very peculiar character. It was held in the town itself, under the presidency of M Guay, the Mayor, in the presence of an audience of 800 persons, composed of all the neighbouring farmers, a great many distinguished members of the clergy, and the pupils at the college, in the College Hall.

We saw there so much enthusiasm, and the work was carried on on so large a scale, that, without fear of wounding any one, I am certain I am speaking the truth when I say that the region of St. Jean and Chicoutimi is positively one of the most progressive and prosperous in the Province of Quebec. There are four most thriving syndicates there. Messrs. Guay and Girard are traversing the region from parish to parish, organising meetings, and attending the assemblies of the farmers' clubs. The work in this district is so exact, so kept in detail, that if you ask Mr. Girard or Mr. Guay how much profit is realised in each factory, they will give you the precise sums. I wish all the districts of the Province would follow such an example.

Thence, we visited a district where for many a day the farmers have been selling a great deal of hay; it is made up of Napierville, Iberville, and St. Johns. There we found so many obstacles and impediments to be surmounted that it will take years and years to overcome them. The farmers have got so into the habit of growing nothing but hay, for sale, that they hate the idea of undertaking any other system. And yet, if we look at the value of the hay sold and compare with it the loss of fertility caused by the sale, it is easy to see how soon this system must exhaust the soil. In a ton of hay, we have 31 lbs. of nitrogen, 8.20 lbs. of phosphoric acid, and 26.40 lbs. of potash; then, when you sell a ton of hay, you take from the land 65 lbs. of fertilizing matters which, at the present price of commercial manures, are worth $6.35. The dairy-farmer gets from the consumption of a ton of hay 80 lbs.

of cheese, which only robs the land of 3.60 lbs. of nitrogen, 0.90 of phosphoric acid, and 0.20 lbs. of potash, in value not more than 57 cents. What a difference! Every farmer who sells a ton of hay, if he would reason and farm so as not to impoverish his land, must feel compelled to restore to his fields $6.35 worth of manure for each ton of hay he sells; while he who dairies need only restore fifty-seven cents worth to his land. The waste-products of the manufacture of butter and cheese remain on the farm, and permit the farmer to restore to the land what it has been deprived of at a very cheap rate.

We next proceeded to Sorel. The audience there was small on account of a storm that was raging on the day appointed for the meeting. This district has retrograded this year. There was a syndicate there; now, there is none.

From Sorel we went to Joliette, via Berthier, where we saw the beet sugar factory. Heaps of pulp lay there, neglected by the farmers; very little of it has been carted by them. Still, it contains a good deal of nutritious matter; for example:

Water	89.91
Protein	1.08
Fat	0.08
Sugar	6.19
Cellulose	2.08
Ash	0.72

A ton of pulp is worth $1.08 for cattle-food, and its residue in manure is worth $0.54. It is a very useful food for milch cows especially, moist and rich, and farmers who have used it in winter for their cows have found it answer. There is enough pulp to supply a great many farms, for it cannot all be used in the neighbourhood, at least not within a reasonable distance from the factory.

At Joliette, we again unfortunately found that the syndicate had not been renewed this year; but our meetings were attended by deeply interested audiences. My attention was called to the fact that, if the dairy is in some degree suppressed in these parts, it is due to another crop, another industry. Indeed, the farmers there wanted to talk tobacco rather than dairy work. A great deal of tobacco is grown here. I had to impress upon the minds of the people that tobacco-growing impoverished the land enormously, and I trust that I proved the necessity, in most cases, of devoting several years to the task of restoring to the land that which this crop had robbed it of. No crop deprives the soil of so much rich, fertilising matter as tobacco. Plants that supply 100 lbs. of tobacco take from the soil 66.75 parts of nitrogen, 8 68 of phosphoric acid, 85.41 of potash, 68.94 of lime; in all 229.78 parts. As you see, you will find very few plants that carry off from the land as much rich fertilising properties as tobacco. To grow tobacco profitably, the preceding crop must be one that does not require any potash, or as little of it as possible,

and then, in the rotation, keep as clover; legumens, &c., must succeed tobacco, as they have the advantage of absorbing nitrogen from the atmosphere.

Wherever tobacco is grown, the land is impoverished, ruined. Look at the land in the States, where this crop has been cultivated; what are they like now? What is the state of the tobacco farms of Virginia, for instance. The lands no longer produce anything; so completely worn out are they by the constant cropping with tobacco, that, in spite of all the exertions of their owners, they no longer yield any profit.

At Three Rivers, we had the honour and inappreciable advantage of hearing, from the lips of Mgr. Laflèche, one of those addresses, so touching, so sympathetic, that all those who listened to the good father of agriculture know so well. In spite of his 75 years, he did not hesitate to make one of our audience, and more, he was condescending enough to impart to us much good advice. He is acquainted with farming, and his counsels go straight to the root of the evil. He gave us an essay on domestic economy, showing how much could be saved by the farmer's wife, if she were to equal indoors the external work of the husband and the sons, by practising, as in former days, such duties as the manufacture of cloth, flannel, stuffs, &c., on the loom. He condemned the system, followed almost universally in the province nowadays, when this work is no longer done at home, but the girls are taught to play the piano and to sing (*à pianoter et à turluter*) ([1]) instead of learning to spin and weave. These industries carried on at home would save the farmer from having to take his money, the produce of his crops, and spend it at the shop. On this subject he spoke like a man who understands his subject.

Since I am speaking of this matter, I will repair the omission I made when, talking of our visit to Roberval, I meant to say a word about the "Household School," kept there by the Ursuline nuns, in which girls are taught domestic management. There, the good sister, who manages the convent farm, and who does it so well as to have won a silver medal at the "Agricultural Merit Competition," set before us a long list of questions, and Mr. Peter Macfarlane, who has not generally much connection with nuns, had, owing to a little trick I played him, to reply to these questions. We visited the household-school, and there we witnessed scenes both touching and consoling; a great number of girls, from six to twenty years of age, were learning first, reading, writing and arithmetic; next, and especially, to card wool, to spin flax, to weave flannel and cloth; we were shown the finest possible domestic products, the work of the skilful hands of these youthful house-keepers. Cooking, too, is taught; how to prepare meals, and how to manage the dairy. In this house, everything was in such perfect order that we were utterly wonderstruck. We saw a young damsel making butter in a style that admitted of no reproach. How much it is to be wished, gentlemen, that the number of these excellent houses

([1]) *Turluter* probably means "to sing badly," as *turlutaire*, the same as *serinette*, signifies "a person who sings without expression."—A.R.J.F.

should be increased in this province, to form our wives and daughters, not to teach them to play the piano and to embroider, but to learn the duties of household management, and to know how to practise all the domestic industries with science, skill and economy.

Next, Nicolet was our object. At this visit, we were shown figures demonstrative of the great success gained by the farmers of the county, who keep their cows as well in winter as in summer. Ten farmers of St. Guillaume, whose names were shown me, with an account of the yield of their cows, made from April 10th to February 14th of the following year, ten months, a profit per cow of from $59.42 to $41.22.

Now, gentlemen, when one meets in a district a great number of farmers who keep herds of cows as well as these men, and who therefore get such yields out of them, one feels at once that one is in a prosperous part of the country.

At St. Guillaume, such cows are very numerous, and the maker conceived the ingenious idea of keeping a book to register all the heifers or cows bred from superior milkers, thus creating a local register of those cows that spring from the best milkers.

At our Nicolet meeting, we had the honor of reckoning Mgr. Gravel among our audience, and of listening to a fine speech from his lips on the grand part the farmer plays in the world.

At Arthabaska, where we were to hold our next meeting, a new syndicate was formed this year. M. Bourbeau, one of our directors, has been at work in this district with intelligence, and people have profited by his exertions. The new syndicate is due to his efforts.

An innovation exists in this syndicate which all these bodies should imitate. It consists in clubbing together to buy everything needed by the factories of the district, such as rennet, calico, salt, boxes, coloring, all in a lump, and of the best quality, at the wholesale price, delivering these goods to the makers at wholesale price, with the carriage added. I quote this good example because it should be imitated. The same system is carried out at Lac St. Jean, and by it a sufficient saving has been made to pay the salary of the inspector of the syndicate.

The District of Richmond. There, and elsewhere in the Townships, our attention was called by numerous letters as well as by direct personal observation, to that disease that makes its appearance especially on the legs of the cattle, which become too feeble to support their frames; it is called "ostiomâlacie." There is not enough lime or phosphate in these soils. To cure this, it is advised to give the cows bone-dust as well as salt in their food, and the farmer should use plenty of lime and phosphoric acid as manure. Everywhere, I recommended giving salt to cows, as it has the effect of notably increasing, from 14 per cent. to 17 per cent., the yield of milk, of making it less likely to turn sour, and the cream easier to churn. Farmers ought to salt their cows daily, even when on pasture.

At Sherbrooke we found a very good creamery. I am highly pleased to be able

to testify to the excellent manner in which it is kept, and how good are the profits made there. M. Camirand, one of our directors, is the manager. We also visited an establishment where is carried on a trade that has very much interested our association, especially during the past year. This is the factory of the Messrs. Hovey, where pork, but chiefly bacon, is salted and packed. Good hams, too, are made. It is a fine prospect that stretches before our farmers when such establishments as this arise in our province. Many a time have we insisted on the importance of our farmers carrying out all the details of the dairy to their extreme limits. Pig-feeding is economically done with the milk brought back from creameries and factories, in addition to clover in summer, andplenty of cooked roots and ground grain in autumn. If care is taken to breed from such pigs as the Yorkshires, crossed with the Tamworths, pork fit for bacon can be made for a very moderate cost.

This was the last visit made by our party.

As for the results, this is what we find them to be : instead of the 28 syndicates of last year, we have now 38 ; and if we had five more inspectors we should have five more syndicates ; but as we had no more inspectors, we could not have the five new syndicates. Among the inspectors we have, we are obliged to employ men who hold only a *pro tempore* certificate, and who, consequently, are not possessed of all the requisite qualifications. But we need not repent of this step, for generally speaking they have answered the purpose very fairly.

Since I am speaking of inspectors, I should like to say a word or two to them. M. Poulin told us yesterday, that instead of passing their time in tasting the cheese for the purpose of finding fault, they should rather devote themselves to the making of good cheese and to the instruction of the makers in that art. Our inspectors visit the factories for the purpose of seeing how things are carried on there. They have to see that the makers attend to the reception of the milk, for this is one of the most important of points in the business ; it is all very fine to get good rennet, good salt, etc., but if you do not get good milk from the patrons, nothing but good milk, you will never get good butter or cheese.

When the inspector visits a factory, he ought to be found on the reception platform judging the milk as it arrives. By taking off the can-cover, the smell of the milk tells the inspectors at once whether it should be received or not. They ought to be very strict on this point, so as to compel the makers to take in only good milk. Of course the inspectors must be good judges of milk, and this does not consist solely in being able to tell if the milk is or is not sour, but in being able to say if it is too advanced or not, too old or too young, clean or foul ; they must know all about it, in fact. Accidents happen, and in numerous cases the cause of the evil is bad milk, and the cause of its badness is hard to trace. It has happened that a farmer has delivered bad milk at a factory; it was clean, well cared for ; the cows were all right and properly milked ; still, the milk was bad. Every sort of trouble occurred at this factory; some days, the milk would not curdle ; on others, it was bitter ; at others red, and this was frequently the case this year. The cause of these accidents

could not often be found out, because the maker was not well instructed in his duties. Sometimes these accidents are caused by the water the cows drink, sometimes by the causes already mentioned. The grass is sometimes in fault; there is a small yellow flower, common enough in the pastures, called the bitter ranunculus; if this is eaten by the cows it makes their urine bloody, and the milk brought to the factory will be red. This may seem to be a rather insignificant cause, and yet it ought to be known. Many other plants, growing in our pastures and meadows, have the same effect on milk. Perhaps, in some cases, there is a disinclination to remedy these things. In the lectures I have given, I always seek to establish a system by which the maker can remedy those inconveniences. It should be understood that it is sought for for the good of all. The maker is to ask questions of the patrons, in order to discover how the cows are fed, what water they have to drink, if such or such a plant grows on the farm, etc. He must tell the patrons that he asks these questions to find out the cause of their bad milk, and to suggest means for the avoiding of the losses it involves; not at all are they interrogated for the purpose of inflicting a fine, but for their own good. Let him do this, and he will, I make no doubt, get an honest, thorough confession from the patrons.

As I said just now, the syndicates, thanks to our comitia, have increased in number from 28 to 38. We have other good results of our meetings to state.

Last year our Association had 1,057 members; our numbers have increased, by something like 40 per cent., that is, 395 new members were elected this year; our present membership is 1,451. That is, we sallied forth and enlisted 395 good farmers as recruits. At our meetings, we have had 8,000 attendants, whom we should never have met, had we not gone to their homes, and there talked to them personally.

We saw more than 500 makers, and it is owing to our direct intercourse with them that we succeeded in organising so many new syndicates.

During the year 1893, the St. Hyacinthe Dairy School imparted instruction to 214 pupils, last year to 268, and this year—1895—to 312, after having been obliged to reject, on account of want of room, 124 applications more than were made last year. This inconvenience has vanished, the school has been enlarged by the liberality of the local government, and we shall be able to accommodate all the applicants of next season.

In conclusion, I beg to lay before you a statement in which are shown the different divisions of the syndicate this year; by it you will see how much work remains to be done before, in this line, we reach perfection:

Division No. 1: 21 creameries, 9 cheeseries. Considering its great extent, this division, which has only one syndicate, ought to have two.

Division No. 2: 23, creameries, 29 cheeseries. Besides the one cheesery-syndicate already established, there should be a creamery-syndicate.

Division No. 3: 15 creameries, 71 cheeseries. There is room for two syndicates, in addition to the two already existing.

Division No. 4: 104 factories, two syndicates. Not enough, there should be two more.

Division No. 5: 87 factories. There should be one more, in addition to the two at present at work.

Division No. 6: 73 factories. One more syndicate could be supported.

Division No. 7: 2 syndicates. About enough.

Division No. 8: 62 factories, only one syndicate. In this district a syndicate failed last year; it should be revived and another organised.

Division No. 9: Only one syndicate; two are needed, as there are 60 factories.

Division No. 10: The last in the province from all points of view.

Division No. 11: One more syndicate than there is here might be useful.

Division No. 12: (1).

Division No. 13: 2 syndicates, the most prosperous in the province.

Division No. 14: A very well organized district.

Division No. 15: Better if it had one more syndicate.

Division No. 16: 3 syndicates, but one more needed; 113 factories.

Division No. 17: 105 factories. Here, there is one syndicate; at least another is wanted.

Division No. 18: 55 factories. Only one syndicate; it needs another.

Division No. 19: 47 factories. Another syndicate might be useful.

Division No. 20: Creameries 14, Cheeseries 27. There is a combined syndicate; hardly enough.

This, gentlemen, is how things stand. I think we have reason to be gratified at the work of our comitia; I feel that our Association was right in organising them, and that we all owe thanks to the government of Quebec, which contributed to the success of the work, as well as to many of the members of the Legislature, including the Hon. Ls. Beaubien, who kindly put their influence at our disposal.

As a corollary to this address, which I am now about to close, I beg leave to read you the resolution passed unanimously at all the meetings, except two at which there was a dissentient vote:

"That the Dairy Committee approve unanimously the request of the makers of butter, and pray the Dominion government to establish refrigerators on board the steamers; and also pray the local government to grant a premium for the exportation of fresh butter."

At Roberval, St. Jérôme, and Chicoutimi, the following proviso was added to the above resolution: "Provided that this premium does not interfere with the grants for the encouragement of new cheeseries in the colonisation districts."

(1) Omitted in the French copy. A. R. J. F.

SESSION OF WEDNESDAY, DECEMBER 4TH—AFTERNOON.

Mr. Barnard again read the seventh resolution (see p. —). It was carried unanimously.

Eighth resolution.—With a view to the perfecting of its work, which is yearly achieving fresh conquests, the Dairymen's Association appeals to all well-disposed people in the country, without respect to person or party. In order to gain its end, which is exclusively in the interest of the public, it requires an increasing amount of pecuniary means. It therefore respectfully invites all the friends of agriculture in this province to contribute their mite (*obole*), either once for all, by becoming life members of the Association, or by paying annually the membership subscription of one dollar.

Ninth resolution.—That the Board of Directors of the Dairymen's Association be directed to realise, as far as possible, the attainment of the objects of these resolutions.

LECTURE BY M. DE J. L. TACHÉ.

NOTES ON BUTTER-MAKING.

The remarks I am about to make to you concern the construction and management of creameries; but from a specific point of view, that is the making of fine qualities of butter.

I leave aside the question of economical management, and that of good yields.

GENERAL REMARKS.

From the study of recent authorities on dairying, one principal fact emerges: that, in butter-making, as in a host of other trades, microbes, or ferments enact the leading part.

These agents are workmen, of infinitesimally small size, that exist everywhere; some favour the production of good butter, others, on the contrary, are detrimental to its quality,

Through scientific experiments supported by long continued investigations, it has been ascertained that at certain temperatures, and in certain conditions, it is the favourable ferments that work, but at other temperatures and in other conditions the unpropitious ferments exert a superiority and prove injurious to the quality of the products. Science has even endowed our trade with these good ferments, which are for sale in the market, or can be made at home, and which act with that certainty that always distinguishes a truly scientific proceeding.

Thus, the installation of a creamery and the work to be done therein must be so arranged as to secure the presence of the favourable ferments; and it is the conditions necessary to this end that I shall enlarge upon in this address.

The Building.

From one special point of view, the value of any creamery is to be estimated not by the cost of its erection, but rather by the site, drainage, proximity to ample supplies of pure water, the arrangement of the rooms, and certain qualifications in its construction.

Site and Drainage.

A creamery should never occupy a site difficult to be drained, and all possible care must be taken to carry off the drainage water to some distance from the building, through wooden or stone ducts that can easily be washed out. Never use closed conduits, which open into the creamery, even if the vents are guarded by siphons. An open *chute*, that takes the drainage out of doors by passing right through the water, is far better. Never put the ducts near the partitions.

The washing out of the creamery will always send along with the water used more or less milk, which will putrefy in the ditches. This defilement is of all things the most injurious to the creamery; we must send it off as far as possible.

The well that supplies the creamery should be situated some distance from the drains and ditches, lest the washings of the building should flow thither and settle.

Nearness to Water.

A good spring or a good well are essential to a creamery. Between a spring at 55° or 60° and a well of good water at 45°, I think the choice should be given in favour of the well, at least in hot weather.

The well and the spring have each their special duty; running water in a creamery, if it can be made to flow under the vats, allows the cream to be kept at a regular temperature. Spring-water, too, is generally preferable for making steam.

Still, temperature and purity being equal, *good well-water* is perhaps more useful than spring-water for washing butter, since it is less charged with oxygen or air; air is the deadly enemy of butter. Nevertheless, if the spring comes from the lower formations, and if its water is not collected in closed ducts, it is as good as a well in this case, all other conditions being equal.

A well, cleared out in the spring, and emptied and refilled frequently by constant free use, generally supplies very pure water. The dangerous microbes or bacteria develop themselves with difficulty in a temperature of 45° to 50°, and the daily renewal of the well-water hinders under these conditions their multiplication and therefore the creation of a centre of infection. The deeper the well, the freer from microbes and ferments.

Very cold well-water is still more specially useful, and even necessary, to finish the churning, or for washing the butter at a very low temperature.

Division of the Building.

The plan of a creamery should be so laid out that the cream may have a room to itself isolated, well ventilated, and far from all smells of steam, oil, warmed-up milk, &c. In very few creameries is this attended to. There must also be a tidy room, easily cooled in summer and warmed in winter, for the churning and working of the butter.

The ice house should be roomy, so as to hold a good quantity of ice. An ordinary creamery, here, should have at least 60 tons in store, or the contents of the ice-house should be 2,500 cubic feet. Reckoning in the spaces left in packing, a cubic foot of space in an ice house should give 50 to 60 lbs. of ice.

The intense and rapid cooling of the cream, on its leaving the separator, is one of the points most neglected in our manufacturing operations. Without ice, of course it is not practicable. We shall return to this subject.

Construction.

The creamery should be erected on a stone foundation (*solage*), or on stout piles *rentourés*, and the walls should be thick enough to be easily warmed in winter and to keep out the winter's cold. Between the floors there should be at least ten feet clear. They should be quite tight, tongue-and-grooved, laid with paint in the joint to prevent leakage into the cellar, and oiled with two or three applications of boiled oil to prevent the wood from absorbing milk. The ventilation must be very brisk, for a damp warm temperature has a powerful influence on the development of dangerous microbes and ferments.

Fittings—Implements.

There is hardly any creamery in this province so badly fitted up that goods of the finer quality cannot be made in it; still, some defects in the maintenance of the repairs, or of the installation may have an unfavorable influence from this point of view. An erratic engine, or a boiler of insufficient capacity, may produce variations in the pace of the separator and thereby cause defective cream. By taking too long about the skimming, the milk standing in cans at the door of the creamery, often in the sun, may suffer.

The heating of the milk before separating ought to be done carefully on surfaces heated by water or steam rather than by naked steam let into the milk. I observe this latter method practised by some very good makers, but emphatically blamed by others. I should be glad to see some special experiments made at our school on this point.

A neglected churn, or any wood long tainted for the same reason, ought to be laid aside. The cream-vats should be built so as to be capable of cooling the cream

rapidly, or at least of keeping it cool after having been once lowered in temperature All the fittings ought to be so arranged as to be easily washed. Easy washings and cleanings infer that every part can be reached by steam, water, and dish-cloth, and consequently, one must firmly condemn the use of long closed pipes in the circulation of milk, and much more of cream.

Before leaving the question of fittings, I may add that the *cream-refrigerator* does not exist in nine creameries out of ten; and I must confess that I myself have none in my creameries.

Inventors may devote themselves to contriving one, but they must remember that it must be handy and easy to clean.

Supplies.

Before beginning to work, good supplies of necessary articles must be provided.

Good salt is not hard to find; buy it in barrels, they are better than sacks. Never use doubtful salt in butter-making.

The use of parchment paper must not be neglected; it has been used lately for the top, bottom, and sides of the tubs. Our tubs and boxes are far from being staunch, and the parchment on the butter, underneath it, and round the sides, protects it from the air. This paper absorbs the brine, becomes impregnated with it, and prohibits the entry of microbes from outside. It also guards the butter from the taste of wood, which is often imbibed by badly soaked boxes or tubs. Employ also tins properly shaped, of equal breadth, not rusted, and use tinned nails that will not leave a black stain on the wood.

Now we come to the most important of all supplies, that of ice.

We seem to be condemned, henceforward for many a year, to keep on producing especially summer-butter. You will forgive me if I translate to you a passage from a Swedish work, by Prof. Grotenfelt, published by Mr. Wall, of the University of Wisconsin:—

"In my opinion, ice is the secret why we Swedes, so far removed from the markets of the world, can compete successfully with other countries more fortunately situated than we are. For instance, in Denmark ice is dear, indifferent in quality, and, it often happens, not to be had in sufficient quantity.

"Our conditions are the very reverse; from our numerous lakes and streams we can get any amount of ice; the cartage is cheap, and the quality perfect. The lake ice, more than two feet thick, can be had here every winter, and so grand is the quality that it leaves no deposit after melting.

"In Denmark, but especially in France and Ireland, the three countries that with Sweden supply the English market, the farmers are generally obliged to cool their milk with water alone, a practice that is doubtless better than not cooling it at all, but which is not prohibitory against certain bacteria. I have often observed in Denmark, in some co-operative creameries, that, even at its arrival at the creamery,

the milk was a little sour, or had at least lost its freshness; and that the butter when packed was soft and tasteless; all this came from want of the milk being cooled."

And the author adds:

"Our creamery-patrons and dairymen may learn a useful lesson from these facts." I add, on my own account, that we too, like the Swedes, may learn a useful lesson from these facts.

The time may come, perhaps, when we shall have so well discerned the true value of ice, that not only the creamery, but each patron of a creamery or cheesery will secure his provision of ice to cool his milk, so as to be able to deliver it at the factory in perfect condition.

I shall return shortly to the use of ice, but I may add at once: I am convinced that the daily expenditure of from 500 to 1,000 lbs. of ice more than we use now, would, in addition to an increased yield, cause a considerable improvement in quality; this would be an investment of 10 to 25 cents a day, to gain, for the proprietor, a double profit, and, for the patrons, a profit four or five times as great.

Making Butter.

We are now about to enter upon the operation of making butter.

Reception of the milk.—Without perfect raw material, it is impossible to make perfect goods; the making of butter must then start from the farmer. The milk must be drawn from cows in perfect health, into clean vessels, and in a place where the atmosphere is not foul and tainted. The milker should wash his hands before he begins his work, and not only afterwards. The milk is to be strained through sieves that are scalded after each milking; it must then be not only aerated but cooled.

The cans should be kept as cool as the vessels for making butter at home; here, we must note the culpable negligence of some makers who do not daily wash out their whey-vat (which should be of tin). When cleanly habits are recommended to the public, one ought to practise them oneself.

One advantage our creameries have over cheeseries is that the milk when skimmed is poured into tin vats, instead of into wooden puncheons or troughs. Great pains ought to be taken by the patrons not to let the skim-milk be long in the can after its arrival from the factory, so as to prevent the formation of ferments that will prove injurious to the new milk next to be put into them. The morning's milk should be cooled before being mixed with the milk of the previous evening, because the latter, even if cooled, will have become populous with ferments during the night, and the warming of it up by the morning's milk would give a fresh impetus to the multiplication of these ferments.

At the creamery, the maker must exercise very particular care in the reception of the milk; and I trust that, within a few years, we shall see a complete alteration in this respect, but of the fourteen or fifteen masters of factories in this province, there are hardly twenty-five who are as strict in punishing patrons for the careless

treatment of their milk as they are in punishing them for skimming or watering it; and I have no hesitation in saying that our factories have lost very much more money through taking in foul milk, than in letting themselves be robbed by the few dishonest patrons one meets with here and there.

Why then be so severe with these poor wretches who forget themselves, when we are so lenient with such a number of model folk, who are so neglectful of cleanliness.

The law punishes careless treatment of milk as it punishes fraud, but there are probably some points to be amended in the federal statute, before it can be so applied as to render its dispositions unattackable in this respect before the courts.

I ask myself, should we not petition our Government to appoint, at the disposition of our Association, inspectors of milk exclusively enjoined to put those negligent patrons to rights, whom our syndicate-inspectors and our makers are afraid of prosecuting after having warned them.

I have been rather long over this chapter, but I will not quit it before giving you some instances, that I look upon with stupefaction, of how much injury can be done by careless treatment of milk. In the Swedish book I quoted from just now, we find, among many others, the following examples:

1. In 1 cent. cube, or in the 15th of a cubic inch, of milk from a very clean cowhouse, examined with a microscope immediately after milking, 160 bacteria were counted; half an hour afterwards, in the same bulk of milk, there were reckoned 980; an hour and a half after 3655, or 35 times as many. The can had been covered up with a perfectly clean cloth, and had remained in the cowhouse.

2. In a dirty cowhouse, were found in the 15th of an inch of milk, examined 45 minutes after milking, 670,000 bacteria.

3. In experiments conducted at Rutti, Switzerland, Nov. 14th, 1895, on fresh-drawn milk, containing 9,300 bacteria in the 15th of a cubic inch, what follows was found:

	Kept at 59° F. Increase.	Kept at 77° F. Increase.	Kept at 95° F. Increase.
3 hours after	1. times.	2. times.	4. times.
6 " "	2.5 "	18. "	1,290. "
9 " "	4. "	107. "	3,784. "
24 " "	163. "	62,097. "	5,376. "

This table shows the monstrous damage that may be produced by keeping milk at the temperature of warm summer nights, *i.e.*, 75° to 80°. As a rule, we ought to try to insure that milk delivered at the factory should never exceed a temperature of 60°, especially in summer.

The milk delivered on Monday morning and on post-festal days consists often of three milkings; moreover, on those days the skimming takes more time, on account of the greater quantity of milk. The maker, then, should put a piece of ice into each can of milk, not only to prevent loss, but to prevent injury to the cream.

I end by an observation made by the buyers of cheese this summer: it is, that many makers have had to pay for losses incurred in the making, the sole cause for which was the bad condition of the milk received by them at their factories.

Skimming.

It often happens in summer that the milk needs no warming up, but in certain seasons it has to be done; and, in my opinion, it is not wise to use the injector, or any other means by which naked steam is thrown into the milk, for fear of giving a burnt flavor to it. The *bain-marie* plan, that is, a double vat with hot water between, is the best.

Take the cream as thick as possible, and for several reasons:

1. Because the growth of the ferments is slower in thick than in thin cream.
2. Because one is not so likely to have curdled milk in the cream.
3. Because thick cream is needed if the churning is done at a low temperature.

The rule to follow is, that the cream, even the thinnest, should be thick enough that no skim-milk separates from it.

There is less trouble caused by having a little thinner cream in autumn, because then it is necessary to push on the ripening. The proportion of cream may vary without inconvenience: in summer, 12 to 15 per cent., and from 15 to 18 per cent. in winter, showing that the volume of cream must be to the fat it contains in the proportion of $3\frac{1}{2}$ to 1, and no more.

Allowing the cream to rush from the skimming-pipes into the pail must be avoided, because thereby is caused to form a froth that hardens in the air, becomes dry, and is hard to mix with the cream; it would be better to let it run down a little trough sloping to the bottom of the pail. It is also advised that the cream should be run over a tin trough or funnel pierced with holes, or over a sieve; but I have never practised or even tried this plan.

These precautions must not be neglected, if one desires to have cream uniform, easy to stir, easy to manage, and easy to churn.

Cooling Cream.

That which I said just now *à propos* of the growth of dangerous ferments in milk, applies also to cream. In practice, skimming is done generally at temperatures above 70°. It may be said that without prompt cooling the cream is in certain and proximate danger of deterioration; hence one of the reasons for cooling. But there is another as well. It has been practically proved that the aroma of butter will be so much the better in proportion as the fermentation of the cream, its maturation or ripening, is produced at a lower temperature; which comes to the same thing as

to say that at a low temperature the ferments which transmit a good aroma are the only ones that multiply.

Other reasons that it is wise not to lose sight of: Canada butter is held to have more body, more solidity, than most foreign butters, American or others, even than Danish butter, according to the quotation I made just now, and to what M. Leclair told you yesterday. It is, therefore, to our interest to see that all our butter possesses this quality, and no means is so sure of obtaining it as the immediate and low cooling of the cream.

These are the theoretical ressons assigned for this: Butter melts at about 93° F.; reciprocally, melted butter becomes solid when its temperature falls below 93°. The fat, worked up in the body of the cow at about 98°, is therefore existing in a melted state in the milk we draw from her. In consequence of a physical phenomenon, these globules of fat, very finely divided in the milk, remain melted, even when the latter falls to temperatures very much lower than 93°; this is called *the state of over-melting* (*surfusion*).

Two causes will bring on the solidification of the globules of over-melted (*surfondus*) fat: a disturbance of the milk, as in churning, or a cooling relatively low. But it has been observed that the degree of solidity or *body* of the fatty matter, thus coalesced (*figée*), is in a direct ratio to the intensity of the cooling that either produces or accompanies that solidification. You know, for instance, that butter churned at 55° has more body than that churned at 65°. For the same reason, butter made from cream that has been cooled down to 45° and churned at 55°, will have more body than if it had been churned at 55° without having been previously cooled down to 45°.

Another reason: The perfectly round globules in milk or cream change their shape in coalescence; and the lower the temperature to which the cream or milk is cooled, the more angular or crystalline will be the form to which coalescence brings them. This crystalline form admits of easier drainage, and the drier butter is, the less soft or greasy it is. Churning cream at a high temperature, and uncooled previously, produces a butter that takes in lumps, instead of grains, and too full of water, of buttermilk, and even of curdled caseine divided throughout the whole mass, Churning cream cooled to a very low temperature, gives a butter in fine grains or crystals, easy to wash, and freeing itself without difficulty from both water and caseine under the butter-worker.

Cooling the cream then facilitates the working of butter, and diverts the danger of working it too much.

It is hardly necessary to add, that in winter, when milk arrives either frozen or nearly so, there is no need to cool the cream as low as in summer.

The cooling of cream in summer has been too generally neglected here. Try it, then, and I am certain it will be a step in the right road.

Ripening Cream.

In summer, it is advised that cream be kept at 45° for at least two, or better, four hours. But ripening is only just the commencement, the working of the ferments must be attended to. In summer, the trouble is to keep them back: in the fall, and in winter they have to be stimulated. Science has come to our assistance, and the trade now supplies good, selected ferments, isolated from the injurious ones, and which serve the purpose of inoculating the cream to hasten the maturation. One can even prepare an excellent ferment oneself with well-selected milk. M. Leclair spoke of it yesterday, and as in this there is matter for a whole lecture, I will insert in our annual report some notes as a supplement to this address. It is positively certain that the use of ferments, purchased or home-made, will become universal; in summer they cannot be used without ice, because the cream would work too quickly and unequally at varied temperatures; but in autumn, the use of ferments becomes imperative; our nights are too cool, and when, in the season of bad roads, the milk is delivered only every other day, ferments are absolutely necessary.

What is the best way of watching the cream so as to see if it is working too fast or too slowly? I confess at once how difficult it is to lay down rules for the purpose in words. Still, we may say that cream during ripening is to be treated from two points of view:

1. To get it to that point that ensures perfect aroma to the butter.

2. To get it to that point of perfection that ensures efficient and easy churning. And these two results are obtained by different ferments.

The best outward sign that the cream is fit to churn, is its gelatinous, homogeneous or uniform thickness. If there are clots of curd in the cream, it is too far advanced. From our observation, in summer cream ought to be so managed that the first signs of thickening should only appear towards evening; at that moment, the froth, that always exists a little on the cream, is mixed with it by stirring; and then there is put into the vats enough ice to ensure that the next morning the cream shall be at the churning temperature of 52° to 54°, in summer. During the day, the cream is to be often stirred up to the time when it is becoming gelatinous; after that, the Danes say it should be let alone, but I am in doubt about it.

The acidity of the cream and its aroma are by no means the same thing. You may have a vapid cream that is not acid; but, on the other hand, a cream that is acid enough has generally plenty of aroma. If the butter is off flavour, flat and without briskness, ripen the cream at a lower temperature by means of ferments. If it is too sweet, and if the cream does not churn well, you may, if you are careful, ripen at a higher temperature, but I think with the milk our creameries get in summer, it is very difficult to make too sweet butter. In autumn and in winter, ripening must be carried on at a higher temperature, and always with ferments.

Of all the points in butter-making, from what I have seen, the fermentation of the cream is the point that has been the least studied, the least understood, in the

past. I could name to you makers who imagine that, the cream once in the vat, with a supply of water, never mind at what temperature, their attention is no longer needed; and our dairy-school has made many a maker take a vast stride in advance, because, there, this point is well understood, and the proper way to ripen cream is alone practised. I think that the use of the organ of smell is desirable, if one is to become master of this part of the business. There are makers who will never distinguish themselves, for want of a sensitive nose. Useful as this organ is everywhere, it is as much needed by the maker as by the fox-hound.

There are apparatus and preparations for determining the degree of acidity of the cream. They will be very useful when practice shall have settled the rules to be observed in their employment.

Instead of laying down rigid laws, it were better to leave it to the experience of each to discover the conditions best suited to his factory and to the milk he receives there. The conditions under which the best butter is made should be noted, and he must try to repeat these conditions from day to day.

Churning.

All that I have said about the cooling of the cream applies equally to the churning. The cooler the cream churned, the finer the butter; the more thoroughly the cream was cooled on leaving the separator, the easier will be the churning. Churning is now practised at 50° or 52° by several model makers; it is advisable to do so in summer, and it is possible with thick cream, well cooled and well matured.

In winter, on account of the exterior cold, churning must be done at a higher temperature, 60° to 65°.

Should we wash butter? Yes, I think so, since washing is a sure and easy means of expelling the buttermilk; still, many authors and practical men do not counsel it, especially when the butter is to be used very fresh.

But there are makers who exaggerate the process, by leaving the butter soaking in water for hours, under the pretext of preventing it from cooling. This is a mistake. Two rapid washings are all that should be allowed; in almost all cases, one is sufficient; it is always enough with cream well cooled, well matured, and churned at a low temperature. Be very particular about the quality of your water. Hard and sulphur-tainted water, if they are both clear, are not, apparently, injurious.

Working Butter.

Butter ought to be worked as soon as possible after churning; nowadays, it must never be allowed to stay long in the churn. Buyers often complain of a want of taste in butter, and I should not be surprised if these defects should be found to arise from the custom of some makers, who leave the butter in the churn all the time the skimming is going on. If the maker does not get up early enough to finish off his butter before skimming the day's milk, he should at least gather it and salt it, so as to put the last touch to it as soon as skimming is over.

Should butter be worked once or twice?

The answer is simple; M. Leclair gave it yesterday. If, with one working you can turn out your butter without marblings, and very dry, only give it one working.

The sooner it is in the tub or box, the better. But you may find it difficult to work it perfectly in one working without stopping; if your room is not very cool in summer, it would be useless for you to persist in working your butter when it has become too warm, and consequently too soft; you can get no more water out of it then. Stop work, then, and let the butter harden in a refrigerator or a tub of ice.

I am now convinced, that when there is a cool room, it will suffice to prolong the working a little to get a dry butter, without marblings, and therefore, with this granted, one working will always be enough.

To expel these marblings of which we spoke yesterday, the working, in summer, must either be continued rather longer, or the butter must be allowed to grow firmer and attacked a second time. An interval of two or three hours will make the marblings easily visible, and the work of getting rid of them can be much more certainly carried out. In autumn, it suffices to work the butter either a little longer or at a rather higher temperature. These marblings appear to be a discoloration of the fatty matter produced by an excess of salt in certain parts of the mass. This discoloration is produced in layers or in veins; hence the names *marblings* or *veins*.

These marblings are of more frequent occurrence in the fall, because then the butter is generally drier and cooler, and, consequently, the salt is more loath to dissolve. The salt should be rather spread by means of a small sieve than by the hand. As to the proportion of salt, follow the taste of your customers; but for fresh export-butter the dose formerly used must be diminished, 3 to 4 per cent is enough. Even less is sometimes wanted, if for the English market. But, once more, consult your customers, and do as they would have you.

Here, makers must be reminded that the dose of salt as weighed, by no means indicates the proportion of it that will remain in the butter. It is the degree of dryness of the butter, when the salt is added, that regulates that proportion. Moist butter takes more salt, dry butter takes less.

What is the cause of the various stains in butter? The marblings are always caused by the salt, as I have just explained. The spots, more or less large, *par flaques*, have the same source. (1) The little dots almost always proceed from cream that has dried, becomes hardened and discoloured by the air on the surface of the vat; this must be corrected by watching the skimming, and even by straining the cream, to get it uniform; by stirring it very often till it has begun to thicken, and straining it again before pouring it into the churn. It is also asserted that these little white dots may be produced by curd deposited on the bottom of the vat of cream, when it has been skimmed too thin or has ripened too much.

And wherein arises the *cheesy-taste* in butter? Sometimes from bad milk, some-

(1) *Flaque* is a puddle, or small pool of water; this does not seem to fit here.—A.R.J.F.

times from too thin cream, or from cream kept too long, especially in the fall; sometimes from inefficient washing or working, which leaves too much buttermilk in the butter. Low cooling of the cream, and ripening it at a low temperature will indisputably cure this defect, if the proper precautions in washing and working the butter be observed.

A very important point is, the proportion of water to be left in the butter. As M. Leclair said, the water in butter sells high at Montreal, 20c. a pound; but I believe our superior make for the Montreal market does not differ from the best make for England so much as to entice us to leave too much water in the butter.

Butter that retains much water loses as much as two or three pounds to the tub in a fortnight, at the end of which time the butter is no longer first-class; it is just as well to give it the proper amount of working, for you will thus often save a half-pound on the turn of the scale which it is the custom to allow, without running the risk of losing the pound.

Our school will probably attend to this matter in connection with the permanent dairy-competition that the Quebec Government intends to establish.

One piece of advice *en passant*. Makers are responsible for their work; why then do not a great many of them make a strict rule to examine their butter after it is made? Every day the butter made the previous day should be tested with the scoop; then, examine the same butter, in the same tubs, five or six days afterwards to study it and to learn how to recognise the changes that occur in it, or the symptoms that are produced in it. It is not pleasant for a creamery proprietor to have to scold his maker and to make him pay for a loss when any occurs. But the maker who does not look after his own duties, by testing his butter, is very much to blame, and even very imprudent in regard to his own interests. Do not put the tins on the tubs at once; wait till the butter is on the eve of being sent off; the tins will not rust; the nails, if they are not tinned, will not stain the tub, and if you want to examine the butter, you will not be hindered by having to unnail the covers.

Packages.

The question relating to the kind of package to be used is of less importance than it used to be. If there is no special demand from customers, I think the ordinary Canadian tub of good quality will do very well; but the export trade begins to want boxes.

Preparation of the Packages.

The box is a more recent invention than the tub, and our makers have perhaps not paid sufficient attention to it.

If practicable, the box is to be soaked like the tub; it is prudent to let them steep, whether boxes or tubs, for two or three days, so that those juices of the wood that are soluble in water may have time to dissolve; but I think this preparation should finish by steaming. A table, through which pass the ends of pipes, leading

from a main pipe attached to the boiler, is a very good apparatus for scalding boxes or tubs. The box or tub is turned topsy-turvy, the mouth lying flat on the table, and the steam is turned on for four or five minutes. As soon as the steam is turned off, the inside of the box or tub is to be rubbed briskly with a clear solution of salt and hot water; while the wood is still hot, fill the tub or box with water or a weak brine, cold, and three or four minutes afterwards, the wood will have absorbed this fresh liquid, after having surrendered, through the action of the steam, that which had served to dissolve its juice.

Of late, antiseptic powders have been recommended, but they never should be added to the salt used for salting butter; their employment in the solution for rubbing the tubs or for moistening the parchment paper, would probably be more useful. If the box will not hold water, it must be plunged into a bath of water, or of brine, and all that will be needed in this latter case is to wash off the salt that adheres to the outside. However, this latter proceeding does not make the boxes look well.

In every package, box or tub, make use of parchment-paper. We are advised to thoroughly soak the papers when they are placed. They can be sufficiently moistened inside, by means of a sponge or an atomiser. Buyers like butter to be damp on the surface and not stuck to the paper; this weak brine evidently seems to hinder the action of the wood on the butter.

M. Chagnon.—Can M. Taché tell me if water charged with gas is dangerous to use for butter? I have an artesian well in my place, whence the water gushes out a foot above the ground, and rapidly, too. It is a spring, and I fancy the water is expelled from the ground by the gas.

M. Taché.—Is no gas produced?

Mr. Barnard.—Does it bubble up?

M. Chagnon.—It does not bubble at all; but a flame can be started when you please; it seems to have the flavour of gas.

M. Taché.—Does it taste like sulphur?

M. Chagnon.—No, it is more saline in taste.

M. Taché.—If it is a mineral water, I should not like to use it for butter; but sulphurous water is innocuous if it be allowed to remain in the vat half an hour before it is used.

M. Chagnon.—I have succeeded well this year with this water; at least I think so.

M. Taché.—Mr. Ayer tells me that he thinks that brine made with hard water would do no harm. He also thinks it better to wash the butter with brine in place of plain water, brine having the property, temperatures being equal, to harden the butter more than water will.

Prof. Thutt.—(in English) I understand that this discussion turns upon the question of knowing if it is proper to use, in the dairy, mineral water, *i.e.*, water almost saline, and which at the same time disengages a great deal of inflammable

gas. Different mineral waters disengage different gases. Some water, containing sulphur, stinks like rotten eggs. This is maybe a good medicinal water, but not good for the dairy. I am satisfied that the use of water strongly sulphurous will not give you good butter, and so of other mineral waters. The best water is that of springs, when it is not contaminated by the drainage from houses or cattle-sheds. I hold strong opinions about this question of water, and I am glad I arrived here in time for this discussion. For six or seven years, I have been examining the water used by farmers in their dairies, and I have come to the conclusion that most people use water that should not be used for the purpose in question, water, not fit for the stock to drink, water more fit for use on hotbeds than for any other purpose, water, lastly, that is sure to injure such fine goods as butter and cheese. The simple fact of washing dairy vessels with impure water will induce a fermentation capable of injuring a good article. It is as essential for a farm to have good water for dairy use, as for its cows. I strongly advise you not to use mineral water. Naturally, without seeing the water itself, and testing its proper character, I can say nothing with precision about it, but I presume that the water in question is saline and sulphurous.

Dr. Grignon.—Would you advise that people should reside in a cheesery or creamery? Do you approve of planting trees round creameries?

M. Taché.—It is not advisable that cheeseries or creameries be inhabited.

M Chapais.—It is very advisable that trees should be planted round creameries. Trees, when they are high enough to afford shade, have an excellent effect, because they purify the air and also absorb part of the effluvia which are always abundant near creameries or cheeseries; from this double point of view, the planting of trees round factories would be an excellent thing.

M. Castel.—It has been the custom to distribute annually, at our meeting, their diplomas, framed, to the newly appointed inspectors of syndicates. This year, unfortunately, the diplomas have not yet arrived; still, in order to do justice to those who took the trouble to prepare for their examination, and were fortunate enough to succeed, we publish their names here, that they may appear in our annual report:

Distribution of the Diplomas of the Inspectors.

Inspections of Cheeseries.

Messrs. J. G. Wales	East Dunham	*Optime.*
C. M. Harvey	"	"
Chas. Wilkins	Mansonville	"
H. W. Palmer	Richmond	*Bene.*
Chas. Standish	Rougemont	"
Alf. Gagnon	Baie St. Paul	"
Samuel Aubin	St. Anicet	"

Inspections of Creameries.

Messrs. Gabriel Henry .....Quebec .....*Optime.*
Georges Duncasse..... ..... "

LECTURE BY M. V. E. DALAIRE.

THE LAW OF LABOUR.

To this law of labour Adam had to submit. The Almighty said to him: "In the sweat of thy face shalt thou eat bread." If we sometimes repent of our decisions, it is not so with God, as regards the condition of the human race. We have to work, and he who frankly accepts his daily task is infinitely less susceptible of fatigue than other men. There is in the heart of man an intense satisfaction which is in itself a precious reward for his useful labour.

It is now-a-days more important than ever to recall to our minds the law of work, because many of us are being continually deceived in their hopes. They imagine that, with study, with improved, almost perfect implements, with the system of modern cultivation, etc., etc., men will at last be clever enough to free themselves from the law of work. No; we shall each of us vanish from the scene before this problem is solved. Why, then, devote ourselves to study? Why such perfection in our work? Because the law of work impels us thither. He who, for instance, does not strive to improve the quality of his cheese, runs the risk of losing his sales, and so on. He, then, who will not study, who does not improve, who will not work, in fact, finds himself incapable of earning his own subsistence; he becomes a burden to himself and to others.

It is necessary now more than ever, and in the future it will be still more necessary to reverence the law of work, because our population is on the increase, and the competition with foreign countries we have to encounter is likely to be still more arduous than at present. Must not this be terribly grievous to the indolent man? Must it not drive to desperation the man who thinks he was born into this world for the sole purpose of enjoying himself? The dollars and cents we receive in exchange for our work are only instalments. God, who has imposed upon us the law of work, only desired to have a motive to make us happy. The blessing of an eternal rest would be but a trifle for those that are tired of doing nothing, and, indeed, our Lord has said that the idle make their happiness impossible. Ennui will perhaps be the "worm that dieth not" of the reprobates. Let us work, then, that, when harvest time arrives, we may reap abundantly the fruits of the harvest.

Finding myself, one day, near the hall in which an agricultural lecture was about to be given, I heard several farmers trying to persuade another to attend the meeting. "Lecture," said he; "what for? I am not paid by the Government, and, in spite of that, I'll give you a lecture in two words: Work, you set of lazybones! Do you need to be told to draw out your water-furrows, to repair your

roads, to feed your cows, to take care of your manure? Work, I tell you. It is folk like you who are the cause of these people being sent here to preach to us! I have made money, and made it by hard work, by economy, and my children I have taught to do likewise! All the same, I mean to go there, to *see* what this man has to say."

After hearing this, I set to work teaching things that it is not easy to understand in practice; a very slight piece of advice does so much good sometimes, and the want of information is so injurious to people who really aim at improvement. At the end of the lecture, our friend, a man full of energy and intelligence, rose: "Sir," said he, "I was afraid I was wasting my time in coming hither, (time is money to an active man); but I am glad I come, for I have learned things that will be useful to me: Thank you, sir; try to come hither often; it will do good, *allez!!*"

To pay, farming needs now more work than ever, and, allow us to say, very often it happens that less and less work is given to it.

Butter is no longer made at home; wool and flax are no longer spun there; and but too often people are too lazy to strain the milk or to wash the cans. No *aerator-strainer* is used, because it makes another vessel to wash! more time is given up to the reading of one or more romances of a dangerous character; novels, about murders, suicides, divorces, harlotry, drinking, scenes in the police courts, scandalous lawsuits, disgraceful exhibitions, and such-like; but there is no time for knitting stockings; besides, there is no wool! still less time is there to read the "Journal d'Agriculture," which, when it reaches the house is torn already! Where in all this is the law of work?

A good kitchen garden would be so good for the health in every respect; but it would take work. Siloes have been talked about for ever so long; true, the benefit, it is clear, would be great, but it would take work to make one. Growing root-crops has become indispenasble, if we want to produce milk and pork profitably; true enough, but it cannot be done without work. The roads are in an awful state generally: true, every one is complaining about them, even those who have not to repair them, because they do not like to be singular, but all that takes work to do it properly. Doubtless, but we must not think every one is afraid of work. Oh! no; there are plenty of good examples, many indeed. Still it is necessary to oppose the idea, that some fine day, work will be only a pastime; no, work is not only useful, but absolutely necessary to the well-being of the life of man, both physical and moral. What is the state of morals when conscientious work is not practised? Idleness begets pride, vanity, luxury, extravagance, gluttony, insubordination, debauchery, in fact everything that can degrade a being created in the image of God, whose activity is illimitable.

All that precedes is not new, but to know it is not everything.

I know that to work unsuccessfully is discouraging; therefore, study more deeply; following the example of the successful ones, try to discover their secret; we

should be astonished perhaps to find out that work, constant work, is the key to the whole business.

Consider the work of the Diarymen's Association for the last few years; look at the organisation of 554 parishes with Farmer's Clubs; think of the 60,000 subscribers to the Journals of Agriculture; ponder our schools of agriculture full of pupils; look at all the present improvements in stock farms, etc. All this, done under the incentive of our governments, all, I say, is work.

And yet there are people who emigrate to the States, for want of work at home, they say·

Our daughters go and work at the loom; they will not keep sheep here: it is work. Let us, then, all work together to raise up a strong, active people, and who knows, if we are deserving of its care, what may be the views of Providence for our future. At all events, there is nothing comparable to those great families living under the same belfry, that people call a Canadian parish. To work, then great and small, and hand-in-hand, let us always remember that "Union is Strength."

During Mr. Dalaire's lecture, the Hon. Louis Beaubien, Commissioner of Agriculture, and Mr. Jos. Girard, M.P.P.; Milton Macdonald, M.P.P. and others entered the hall.

The President:—We remark constantly the unlimited devotion of the Hon. Commissioner of Agriculture of the province of Quebec to the cause of Agriculture. He has given us a clear proof of it to-day, coming as he does from the House while it is in full session, and in spite of his numerous duties, to honor us with his presence. We must show him how wholly grateful we are by begging him first to be good enough to address at at once, and we will then prove our gratitude to him afresh by putting into practice on our farms the valuable advice he will be kind enough to give us.

The Hon. L. Beaubien, spoke in French, and held his audience under the spell of his eloquence for a too brief half-hour. As he had just been addressing the English evening session, M. Beaubien aimed at condensing and blending into one the two addresses. Our readers will find this abstract further on.

LECTURE BY D. B. BOURBEAU.

CREAMERY AND CHEESERY SYNDICATES.

Mr. President and Gentlemen:—

As it is my duty to supply you with some information on the formation of syndicates and their usefulness, allow me to say, first of all, how delighted I am to be able to tell you that, last season, there were thirty-eight syndicates in operation in this province.

Thirty-eight different divisions, combining to promote the improvement of our dairy products and to gain that end as surely as possible by the selection of com-

petent men to inspect the several factories of the division, to reform their defects, and achieve the perfecting of that which is already good; is not this a step in advance that must rejoice the hearts of all those who are interested in the great work of dairying? Let us hope that this progress will go on increasing, and that, before long, each county will find it its duty to have its own syndicate. Then, we shall see our butter and cheese holding a high position on the markets to which we export it.

In a division, the inspector is the soul of success, since, under his strict and watchful supervision, both makers and patrons will be compelled to fulfil their duties with exactitude; the makers, by devoting the proper care to the manufacture; the patrons, by sending no milk that is not of the best quality to the factory.

And in order that the inspector himself be obliged to fulfil his obligations, our Association appoints an inspector-general, and a sub-inspector, who have control over the local inspectors; so that the least negligence on the part of the latter is pointed out, and the remedy applied at once. The salary of the inspectors is occasionally not very high, so some of them, to increase their incomes, engage in other business; as conflict between personal interest and duty might injure the progress of the syndicate under the inspection of one of these men, it is desirable that inspectors should be paid such wages as to enable the directors to interdict all such double engagements. With such conditions, the supervision of the inspector-general and his assistant will compel the local inspectors strictly to fulfil their engagements.

Up to the present time, as a general thing, we are satisfied with the services rendered to the dairy trade by the local inspectors; I am sure that their services will be more highly appreciated in time, when people can form a better judgment of that which they are called upon to do.

To form a syndicate, it is only necessary to write to the secretary, M. Emile Castel. He will always gladly furnish the documents containing the rules to be observed. And, as I hope before long to see many new syndicates arise, I would beg those who wisely intend to form one to make haste, so as to be able to engage their inspector, at least before the end of March.

These are some of the advantages they will gain by doing so:

1. The inspector will visit the different factories to see if there is not urgent need of some repairs in the buildings or the apparatus;

2. During a week he will hold a meeting of the makers in a factory already at work, and give them instructions conducing to uniformity of make;

3. He will also call together the proprietors of the factories, and get them to appoint a fit person to purchase the goods that belong to the manufacture, such as calico, salt, rennet, boxes, tubs, etc. The purchase of these things wholesale by one and the same person will prove a great saving. The large quantity bought will secure him low prices, and make, I hesitate not to say, a saving of at least 15 per cent. in the price, besides a superior and uniform quality in the goods. If the inspector has to collect the makers together, in order to teach them useful, necessary things about the process of manufacture, so he ought to make it his duty to assemble

tne patrons, to give them rules to guide them, that the milk they take to the factory may be in proper condition.

If all this work is finished before a single factory is at work, it will certainly be a great saving of time and a means of ensuring a product of better quality, provided everyone profits by the good advice given.

It is an established fact, well known to the intelligent among us, to all those who are interested in the material progress of our country, and especially of this province, to all those, indeed, who have at heart the advancement of our industries, and emphatically of our dairy industry; it is a fact, I say, that the butter and cheese makers who, little anxious for instruction, remain stationary, instead of trying to improve in the processes of manufacture, invariably retrograde.

In vain do they, for the sake of brazening it out, viciously criticise those who follow up progress and those who teach it. The public will soon be convinced that they are behindhand, that others keep their cheeseries in better form than they, make goods of better quality, and will, without doubt, be richer in the end than they.

The same defect is unfortunately met with in certain farmers. A malevolent disposition induces them to depreciate those who are heartily trying to improve themselves. Whether from carelessness, from idleness or from ignorance, they persist in preserving the old routine—that is, they keep on working a farm worn out by a long-continued sequence of the same crops, without ever dreaming of returning to the land a part of the riches they have carried off from it.

Fortunately, the number of routine-followers is diminishing since Farmers' Clubs have come into existence in our parishes, where our intelligent farmers mutually exchange ideas and relate the results of fresh experiments, while filling their minds with the information imparted by our learned lecturers.

Our "Journal d'Agriculture," too, is an abundant spring, whence they may imbibe good advice as regards improved cultivation of the soil.

Still, routine-followers there always were, and there always will be.

If it is proposed to establish a syndicate in a county where the need of novel scientific processes is felt, we shall not fail to hear a cry from a maker or from the farmers against what they call "an attempt against their freedom of action." The maker opposes the syndicate because he dreads the visit of the inspector, and the patrons oppose it because they dread pretty often that he will expose the frauds committed, such as watering and skimming, to which the milk has been subjected, or certain faults concerning the cleanliness of the milk or the vessels that hold it: neglect of straining, æration and cooling of the former; neglect of proper washing of the latter.

Pray believe, Mr. President, that the number of these careless makers, of these dishonest patrons, is very small; but even if only two or three are found in a syndicate, even only one, it is more than enough.

The inspector is of use in that he obliges the dishonest patrons to amend and become scrupulously honest.

The inspector, when he meets with a case of fraud, writes at once to the guilty patron and gently gives him warning. If, after this warning, the milk the patron in question sends to the factory does not improve, he is prosecuted according to law, and the testimony of the inspector against the accused is overwhelming. But the case rarely gets so far as that, for the patron, not wishing to disgrace his family by allowing the rogueries he has been guilty of to be published abroad, restores the money he has stolen from the other patrons before the law has become cognisant of his rascality.

The inspector may also support the good name of an honest farmer, who, delivering milk pure but poor in fat, may be suspected of fraud, while no one is to blame except the cows.

The inspector finds out these things more easily than the makers, since he has by special study acquired more knowledge about testing milk, and has at his command the proper instruments and knows how to use them.

I will venture to make a remark, *en passant*, about the water given to cows, and I will point out a defect that often injures the quality of our cheese. The water cows drink, having a great effect on the quality and flavor of the milk, ought always to be as pure as possible.

During the great heat of summer or during a long drought, water becoming scarce, particularly in the low lands, some farmers, to save the cartage of water, dig out a pool, in the lower part of their farms for the cows to drink at. This stagnant water, heated by the sun, muddled by the trampling of the cattle, becomes odious to both taste and smell; the cows forced to drink at these murky places, pools, yield a milk that as it gets older emits a taste and smell like that muddy water, a taste that cannot be got rid of, and which communicates itself to the cheese; and this it is that causes it to be put down as of inferior quality by the buyers, who, without knowing the origin of the defect, declare that the cheese is "off flavor," and know, too, that the older it grows the worse it will become.

The price of this cheese being lower, the maker who did not detect the bad quality of the milk, which, by-the-bye, is almost imperceptible in the fresh state when the cooled milk is delivered at the factory; the maker, I say, is forced to give up part of his salary to reimburse the parties for the loss caused by the "cut in price." It would be a good thing if every farm were visited now and then, for the farmers who attend to their own interests and the makers would no longer suffer from the faults of the negligent.

This would be a little too much perhaps to expect the inspector to do, as he has already to perform the onerous duty of looking after the factories and the inspection of the milk. But I do not see why each syndicate should not have an assistant-inspector, paid by the patrons. He would have less responsibility, and his wages would of course be lower. If divided among the patrons, it would be a mere trifle to each.

The inspector often has too many factories to visit, and cannot afford to each of them all the time required to give certain details of information that are not without importance.

The assistant would replace him in these details, would look after all this business; he would see that the factories were kept clean, inside and outside, the whey-vat, the drains, the cheese-boxes, the carriage of the cheese from the factory to the boat, or to the railroad, making sure that every waggon has a water-proof cloth over it, to guard the cheese against the sun, the dust, or the rain; he would inspect the pastures, the springs or wells that furnish the cattle with water. He might cast an eye on the cows, but do it quietly, so as not to bother any one with his visits. The most perfect of the patrons not needing these visits, knowing that they always do their duty to the letter, would still be interested in allowing their farms to be inspected as well as their cows and watering places, so as to have a right to insist that the same visits should be paid to the careless patrons.

All these things can only be obtained through a syndicate.

I may add that, to do justice to the patrons, that each may receive the real value of his milk delivered at the factory, it is impossible to secure these things in any other way than by paying for milk according to its richness. In one of my syndicated factories, where milk is paid for in that way, it was proved that the value of milk by the hundred pounds falls by ten to fifteen cents, from the richest to the poorest quality of milk. Is this clear enough to convince patrons that it is to their interest to demand that their factory be syndicated and the milk paid for according to its richness?

During last season, we heard that the exporters found many defects in the cheese; the makers must have suffered enormously, and the whole wages of some of them must have been lost. With the help of the inspector and his assistant, the losses would certainly have been less, their superintendence would have removed many of the defects in the cheese; the reputation of the butter and cheese of this province would have been thereby enhanced, and the patrons would have found their future profits increased.

At the Columbian exhibition at Chicago, we earned a good reputation; why do we not strive to persevere and increase it? Would not the best way to do this be to establish syndicates, thereby bringing about good and uniform manufacture, a quality highly esteemed by exporters?

Some syndicates, that have been established for years, have, after improving the quality of their goods, apparently lost their primitive ardour, and even some of their prestige; it was, sad to say, discovered that in this the fault lay with the inspector, who, not finding his pay sufficient, had too many irons in the fire, and neglected his duty of looking after the factories under his control. This is a great misfortune, and the inspector-general had before been obliged to remark upon it.

New syndicates, only started last spring, have proved by the excellence of their cheese that they have largely profited by their inspector's teaching and that he has done his best to do his duty.

Let us have syndicates in every county in the province, to raise the level of our dairy-products, and enable us to sell them for as good a price as the Ontario goods fetch.

To attain this result, the zeal and watchfulness of all engaged in dairying must be redoubled, and the good understanding between the patrons, the makers, and the inspectors be increased; this will insure success.

Besides, markets must be organised in our chief country towns, whither the buyers and sellers might resort, at a date agreed upon beforehand, as the boards in Ontario do, as well as the boards already established in this province. A lecture, by a more skilful and competent lecturer than I, should be read before you.

Pray, Mr. President and Gentlemen, accept my most grateful thanks for your kind attention, and believe in the great satisfaction I should feel if the exertion of all my powers could tend to the development of dairying in our grand and beloved province.

ADDRESS OF MR. MILTON MACDONALD, M. P. P.

Gentlemen, our worthy president has just told you that I am about to address you. I do not know whether he is calling upon me to speak as a farmer, in an agricultural lecture; or as a director of an association, to give an account of my conduct in that capacity, and explain my reason for not being with you until this convention was half over. Summoned to Quebec, as you all know, by my parliamentary duties, I have not neglected there the interests of the farmers who have entrusted their care to me, I have not been idle there. I was thinking, too, of this convention when I was working with my colleagues, MM. Savaria and Girard, to ensure the presence here, to-day, of the Hon. the Commissioner of Agriculture. I had not intended to go to Quebec this week, having other engagements, and hoping to spend the time with you; but a glance at the orders of the day, showed me that the agricultural budget was inscribed for this week; so I went to Quebec, for the purpose of devoting my poor abilities to the service of the agricultural interest before the House. I have the pleasure to inform you that at the session of the night before last, I was called upon to defend the request of this Association in favour of the projected exportation of butter. I know that several members of the House were opposed to this bill; I therefore put forth all my zeal in its favour, and I am happy to be able inform you that a sum of $15,000 has been placed at the disposition of the Hon. the Commissioner of Agriculture, for the encouragement of the export-trade in butter.

So well did the Commissioner plead the cause of the Farmers' Clubs, when asking for a grant for next year, that not a single member opposed it. You know well that the farmers of the Province of Quebec are the object of the earnest solicitude of the Commissioner. The Dairymen's Association is, so to speak, the mother of the Farmers' Clubs, but the Hon. Commissioner may well be termed their foster father; and is it not a fitting opportunity of calling him by this epithet, now that he has

succeeded in getting so nice a little sum as $40,000 for the use of the Clubs, every one of which may in future reckon upon a grant of 50 cents a member, with a maximum limit of $75 a club; this, I think, is very encouraging. A farmer's club that receives $75 from government, in addition to the members' subscriptions, can give its members an infinity of things, such as, newspapers, publications, samples, seeds, etc., etc., for the improvement of the farmers' position. The smallest club can now reckon upon a grant of 50 cents a member, and the Journal d'Agriculture will be sent gratuitously to each of the members. We are trying to persuade the Commissioner to have the Journal published twice a month, we also want him to have it sent gratis to all the members of this Association; he has not yet assented to this proposition, but if the Association pass resolutions to that effect and send them to the Commissioner, we are almost sure to succeed.

I am not here, gentlemen, to deliver a lecture. I am a farmer as most of you are, and I have need of instruction: that is the reason why I am present with you at this Convention. I may tell you that are present, that the work of the Association is favorably regarded by our government, and that it is disposed to assist us. But I would persuade all present to support the efforts made by the government to assist agriculture by becoming the apostles of our principles among the farmers who are not members of our Association and encouraging them to become enrolled in it. The subscription is only a dollar a year, and gives each member a right to the Journal d'Agriculture, the Annual Report, etc., which is a whole treatise on agriculture at the service of every farmer anxious to improve in his business.

And now, Gentlemen, as regards the project for exporting our butter, I find it involves great advantages, for the farmers as well as for the country. All those who have considered it, acknowledge that the plan is of vast importance; for every one now admits that we make enough cheese, and that we must not increase our make of that article. Out of 25 millions of dollars' worth imported into England, we sent, for our share, 18 million dollars' worth of Cheddar; but though the butter imports of that country are about 60 million of dollars' worth, we only send one million dollars' worth. To help us to make our butter absolutely fit for the export trade, and suited to the taste of the English consumer, Professor Robertson has provided us with a Danish maker. You know, of course, that Danish butter is the finest on the market, and sells for the highest price. Mr. Robertson imported two casks of Danish butter for the last Montreal Exhibition, and placed them alongside of our butter: our butter was found to be as fine as the Denmark butter.

This evening, you will listen to Mr. A. A. Ayer, who will address you on the future of our butter-trade with England. If our butter enjoys so good a reputation in England, it is due in part, to the firm of Ayer & Co., which took great pains, last year, to introduce it into England and to make it known there.

One thing, too, that we ought to strive to accomplish is to establish local syndicates, for the sale of our butter and cheese. In the district of St. Hyacinthe, we have determined to start a local market, thereby following the good example set

us by the Eastern Townships. We mean to form at St. Hyacinthe a great cheese market, like the "cheese board" your district has established at Cowansville. There, all the cheeseries of the district are represented; the buyers flock thither, and all the cheese is sold there. The advantage to a whole region is very great. We shall probably have from 200 to 250 factories represented there; thither will all the purchasers of the Dominion be invited, and, doubtless, we shall succeed, as success has followed such a system at Cowansville, in Ontario, and other places.

ADDRESS OF M. JOS. GIRARD, M. P. P., (LAC ST. JEAN.)

I must inform you, Gentlemen, that in accepting the invitation made to me to address you, it is not my intention to make a speech; and that, for several reasons. In the first place, as your president who just introduced me, took care to tell you, I come from Lac St. Jean; so as you see, I reside far from the populous districts, and, consequently, have nothing new to tell you. My reason for coming hither was not to teach, but to learn new things. By my position as member, I am bound to look after the interests of my constituents, both here and at Quebec, and it is on this ground I am here to-night. As things are at present, I hold it to be the duty, almost a duty of conscience, that public men should discharge their obligations, wholly and everywhere, to their extreme limits. The Province of Quebec, especially its agricultural population, is, at present, like a hive of bees, in which every individual is at work, each in its own sphere of action, in its respective part. And in this hive, Gentlemen, I would play the part, not of a big drone, but of even the smallest of the bees, and strive to do my little share of work according to my capacity.

In our county, out there, it is only within the last two years that we have succeeded in organising a cheesery-syndicate. We tried to do so several times before, but had always failed. Now, we have had a cheesery-syndicate at work for two years, as well as a syndicate for sales there, 200 miles from Quebec. Our organisation is not perfect; far from it; but it is that which we thought the best to be done in the circumstances. Among the members of the syndicate, sale-agents were appointed, with orders to sell at the highest possible prices. In order not to make the selling too burdensome, we sell the cheese at home by telegram; we offer the buyers the lot we have on hand, asking them how much they will pay for it, and we sell to the highest bidder, who has to accept delivery, *i.e.*, the weight and quality, at our own station. We are well satisfied with this way of selling cheese. This year, it was rather cheaper than usual, but we have always succeeded in getting the highest prices current at the time we sell.

As we live far away from any of the great towns, and to make our Association as useful as possible, the Directors, who buy the goods used in making butter and cheese, called together all our tradesmen at our syndicate meeting last spring, with the intention of making, in common, at that meeting, the purchase of all the goods needed for the season. Some of them were present, others sent their prices

by letter; in short, we had offers from five or six different firms; and thus we succeeded in obtaining an average difference in the cost of these goods of 18 p.c. in our favour. As for the purchases we used formerly to make in Montreal, we had to pay freight on a distance of 380 miles; we can now buy goods delivered at our own place. This arrangement gives us, as a final result, a saving of $392.05, divided among 23 patrons belonging to the syndicate in operation in our region last year. The expenses of our syndicate, amounting in all for the salary of the inspector and other outlays to $500.00, the share of the factories, or $250.00, being deducted, was paid for by this economy, and we had $142.05 of clear profit. This proves the value of the proverb, Union is Strength. And the advantage of this system is, as M. Bourbeau says, that by it we also ensure uniformity in all the factories; we have the same rennet, the same salt, coloring matters, calico, and boxes. With an inspector who closely superintends the working of all the factories, all the makers, we succeed in getting a more uniform style of cheese. This is an indisputable advantage for our goods. Looking at the necessity, under which we labor to-day, of contending against competition by improving our products, this is a fact of the highest importance.

Such, Gentlemen, are the details I have to lay before you in proof of the fact that we, although far removed from the great centres of population, are also doing our best to insure that the goods we have to market, while being of the best quality and most carefully made, are brought out at as low a cost as possible both as regards the farmer and the maker. The system seems to have answered well this year, and I doubt not will be as profitable next year.

I must say that I was rejoiced to hear those who preceded me speak of the efforts making to improve our roads, and to learn from the Hon. Commissioner of Agriculture that which he had concealed from me up to this day, how great an interest he took in this important question.

I have remarked with pleasure the serious attention with which this enormous audience follows the proceedings of the Convention. It is a proof that, everywhere, farmers appreciate the importance of the people of the Province of Quebec devoting themselves more earnestly than ever to the work of agriculture, to the products of the farm.

Simple farmer, as I am, and by no means the wealthiest in my parish, I left the plough-stilts to go to Quebec, there to associate with public men, and with them to work for the benefit of the farmer and to closely watch over the interests of the agricultural population. The interests of the farmer; this is a subject to which I never fail to draw the attention of our public men, as often as an occasion of doing so presents itself, for I consider that to work in the interests of the farmer is to work in the interest of the country, of our province. Thus, when I see numbers of our public men devoting themselves to the interests of agriculture and watching over the interests of the farming population, I am deeply gratified; still more so, when I see good old gray-bearded fathers of families quitting their work and coming hither to gain information that will aid them in being successful farmers, then, indeed, is my

heart filled with joy! For, to be successful the farmer needs earnest study, and when the agricultural population is prosperous, the province, the whole country will be prosperous too.

LECTURE BY M. J. D. GUAY.

[In consequence of a sad mistake, M. Guay's lecture cannot be inserted here; we hope, however, to be able to include it in the present report.]

The Rev. M. Cousineau (Superior of the Seminary of Ste. Thérèse).—Gentlemen, when listening to MM. Bourbeau, Girard and Guay addressing you on the subject of association and union, of that sort of union that makes strength, I began to think how desirable it is that there should exist among our different agricultural societies a bond which might unify their action, and by that very fact intensify the force of our movement in favour of the progress of agriculture in our province; and as the Dairymen's Association is indubitably the most prominent, and as it has been working successfully for many years for the advancement of agriculture, I think, gentlemen, that it is its duty to bring about that union. Wherefore, I propose the following resolution:—

Resolution proposed by M. Cousineau.—"That the Dairymen's Association respectfully prays the Agricultural Missioners to call together at each of their annual meetings a delegation from the executive committee of each of the following societies:—Dairymen's Association, Farmers' Syndicates, Canadian Breeders' Association, Central Canada Agricultural Society, Horticultural and Pomological Society and Good Roads Society, so as to concert, in agreement with these delegates, a method of action in common, with a view to the securing, by means at once the surest and the quickest, the improvement of the lot of the agricultural population."

Carried unanimously.

M. J. de L. Taché.—It is probable, gentlemen, that this year the Government will ordain that makers shall be obliged to brand their cheese. We proposed last year that the Association should register a special trade-mark for butter and cheese, and control its use. As it is almost certain that next summer a law will be in force imposing a trade-mark on butter and cheese, I think it right to propose to this meeting to reiterate the resolution passed at St. Joseph de Beauce concerning the trade-mark for butter and cheese. (See 13th Annual Report, page 172).

Carried unanimously.

SESSION OF WEDNESDAY EVENING, 4TH DECEMBER, 1895.

M. Castel.—Our worthy President prefers asking Mr. Foster to preside at this meeting. He thinks he could not speak English so fluently as he would like. I believe we shall all be pleased to see Mr. Foster act as President.

Mr. Foster.—I feel highly honored at being called upon to occupy the chair, and I can assure you it affords me great pleasure, as I think we are holding one of the most important meetings ever held in Bedford. As the hour is advanced, I will not take up your time any further, but will call upon Mr. Greig, M.P.P., to offer a few remarks before Prof. Robertson addresses you.

Mr. Greig.—Mr. Chairman and Gentlemen: I might say it is very unexpectedly I have been invited here to make any remarks. I cannot say, like my colleagues, Messrs. McDonald and Girard; they claim the honor of bringing the Hon. Minister of Agriculture here to-day. But I may say that, about 10 o'clock last night, our worthy Minister of Agriculture came to me in the House, and asked me if I would accompany him to your Dairy Convention at Waterloo. After he had insisted a little, I made up my mind to come. I have come, and am happy, in coming, to see so large an assembly.

I think that I will make a few remarks with reference to our butter and cheese factories. I have listened to a good deal of discussion this afternoon; but it strikes me that the great point to arrive at is some way in which we can have our farms and factories run to better advantage, and produce a superior quality of butter and cheese. I don't pretend to be able to state to you a better way; but we might devote our efforts a little more to that end. In Ontario, they have a system a little different from ours here, and it works well. Large manufacturers employ a man to manufacture their cheese, and he is interested in the result; he manufactures cheese for a certain sum, and arranges for the hauling of the milk. Now, in different parts of Ontario, (I think Prof. Robertson will be in a position to confirm what I say, and perhaps throw a little light on the subject), I understand cheese factories haul the milk, and make the cheese for two cents a pound. The question, then, is this: one man may be five miles from a given factory, and the other half a mile. By this system, every man pays the same price for the hauling, and it brings every man on an equal footing with regard to cheese and butter manufacture, and puts away this idea of small factories. It is proved that large factories produce a better quality of cheese than small ones, and for butter the same. It has got to this stage in the Province of Quebec, and it pleases me very much that you have come to it. I feel very sorry that the Hon. Minister of Agriculture, in connection with butter and cheese factories, at first encouraged so many to establish factories, and did not

restrict them, so that there should be only one or two to a parish in districts where, to-day, we have five or six in a parish. It would have been a great advantage for us. There was a remark made by one of the gentlemen this afternoon, about one man building a factory, and another saying: "Halloa! he is making money," and immediately going and building another factory no the opposite side of the road. He thinks it is his own now, and he will run it. Then, these factories cannot afford to do this work in such a manner as to make cheese of good quality, and we all suffer. This cheese goes on to the market, and brings more than it is worth, and the good cheese suffers on account of the bad.

Now, if the time had arrived when we had more cheese of good quality, we should have better prices, and all would benefit by it.

I might say a few words in regard to the attitude of the Hon. Minister of Agriculture upon the question of roads. I am much in favor of good roads. And I think, since dairying is suffering, it is much to the interests of the dairy industry to have good roads. Where I come from we bought, three years ago, a road machine. There was considerable kicking about it at the time; some were for it and some against it. But to-day I say this, and I think the neighboring municipalities will corroborate me in so saying, that the people are to-day highly pleased, and wherever it is used it is giving the greatest satisfaction. To-day, we would not be without it for ten times what it cost. It has been a greater benefit to our roads than anything we have yet tried in our part of the country. I think it would be a grand thing to introduce it into every part of the province, especially where there are cheese and butter factories. When roads have got into a bad state, their repair cannot be done better or faster than by these machines.

I do not intend to occupy your time any longer, since I know I am to be followed by Prof. Robertson, who will be able to give you a thousand times more information than I can. I understand he has something new to bring before you, something which I feel will interest us all very much, and I hope we shall all give it serious consideration and encouragement.

I thank you, gentlemen, very sincerely, for your kind attention.

Mr. Foster:—I take much pleasure in calling upon Prof. Robertson, Dominion Dairy Commissioner, to address you on the resources of the Province of Quebec. It will be of special interest to everyone in this district, and not only this district, but all over the province.

ADDRESS OF PROF. ROBERTSON.

Mr. Chairman and Gentlemen:—

I come with some diffidence, but with a good deal of pleasure, to speak at this Convention, upon *How to make the most of the food-producing resources of this wonderful Province of Quebec.* You may not know that this is the largest of all the Provinces of Canada, with the exception of British Columbia, where they have so much land

that it is said the good Lord had to double it up and down the hillside to make room for it.

In many other respects this is a prodigious province. It is full of good things; and of all the good things in this wide and beautiful province, I do not know of anything that cannot be made still better than it now is by the intelligence, industry, skill, labour, patience and justice of the men and women who live in it. Your soil and your grasses are both excellent, and they can be made more productive. Improvement can still be made in your grains and your fodders; you can still improve and increase the yield of your roots and your fruits; you can make more money and more comfort out of your trees; and with your flowers you can make the province better worth living in. With your pigs and your poultry, your cattle and your sheep, you can feed and clothe your families more abundantly, and provide the where withal to make them live more comfortable and more usefully. With your horses and cows you can increase wealth and enlarge the capacity of these to serve you, that you may better fill your place and serve others through the improvement of your Province. You can make your land better, more beautiful and more valuable, on account of the patience, persistence, kindly intelligence and frugal habits of your men and your women and their capable management of these resources.

While you have marvellous resources, from the lowly soil up to the lovely women, you have to be a marvellous people to make the most of them. How to make the most of these resources is still a problem of the farmer and the problem of life. To make the most of the soil, of the climate, of the plants, of the animals, to make the most of yourselves, these are the tasks worthy of your best talents.

The Possibilities of Improvement.

The more I learn from frequent travelling of the almost unlimited resources of the Dominion for profitable agriculture, the more admiration I have for the Province of Quebec. Sometimes the people of Quebec have a little inclination towards a tendency to suppose, or to have it said that they do suppose, that if a man speaks very well of the fruit-producing resources of British Columbia, that therefore he has less liking than before for the fruits of Quebec. But only a man who knows Canada from ocean to ocean can appreciate Quebec at its best and true worth. And so, while I have something to do with all the provinces of Canada, I come back every year to the Province of Quebec with no abatement of my admiration for the resources of this beautiful Province. Still, of all the good things Quebec possesses, I do not know of anything that cannot be made better than it now is by the intelligence and the industry and the skill and the patience and the justice of men and women, and just so far as this Dairyman's Association can stimulate the cultivation and exercise of these things, so far does it become one of Quebec's valuable resources for wealth. There is an opinion sometimes that the sources of wealth are all material things that can be weighed and measured and bought and sold. It is not quite so. While the

natural resources for wealth may be spoken of as soil, water, climate, and building materials, these cannot be realized upon into forms of usable wealth except by the application of intelligent labor. In so far as this Association causes the people of the Province to exert themselves in right directions, in so far does it enable them to make the resources of the Province available for the well-being of the people. As sunshine acts upon the latent life of seeds which are planted, and wakes them up into the doing of something, so the kindly energies of this Association have been waking up the farmers throughout the Province and causing them to bring things to pass. As inert material is quickened and glorified through the contact of the life of the plant and the application of sunshine, so the great masses of the population are wakened up and lifted up by the humanized sunshine which finds expression through such organizations and conventions as this. Of course, some few people see no good in these things. They are those who never go into the sunshine business; and the sufficient answer to their unbelief is that the presence of a blind man does not abolish the beauty of flowers, nor prevent the sweet sunshine from enriching the earth with these and many other good things.

STANDARDS FOR MEASURING PROGRESS.

Some people try to measure our progress in developing the resources of the country by looking into the statistics of blue books, to see how many there are of us. If increase in numbers be a fair way of measuring a country's progress, China is the most progressive country in the world. So far as I know, it has a larger increase of population annually and less emigration than any other land the sun shines on; that is not necessarily progress, or evidence of progaess. It is not "How many are there of you?" but "What are you each good for?" Since that is not a fair means of measuring any advancement we may make, what rule shall we apply to a country to determine its progress? How shall we measure it to discover whether it be a land good to live in, or whether it becomes more so from year to year? Let us estimate it by its bread and butter opportunities. There are few people in Canada who live in it, except by choice; so there must be something here more pleasant to the people than can be found elsewhere, to induce them to stay. What is that? I take it mainly to be a chance of making a good living and getting good bread and butter, and abundance of them. I mean by bread and butter all the material things which we want. That is how most of us have measured the land, or we would not be here; we would go elsewhere. Someone says that is a very low standard by which to measure a country's attractions and opportunities. It may not express a very high or noble ideal, but is it not the rule for every-day life, which actuates most people at the present time? I would rather be responsible for the statement than responsible for the standard of measurement. I have no sympathy with the flippant complaint of a few literary, so-called learned people, who say we are going over to an all-surrounding and all-absorbing materialism. I find many men who are engrossed deeply in advancing the material interests of a country, who by that means are

reaching up towards an attainment of their ideal of an honest and noble living; and I find others of the super-ultra literary sort, who are reaching out towards material and sordid ends through what are called ideal means. Would not an honest man, with a high ideal of life, rather dig drains, shovel coal, saw wood, break stones, and certainly bake bread, make butter and enjoy the luxury of realizing his high ideal of an honest living, giving the world more value in service than he got or took of substance, than fellow a genteel calling for the sake of escaping toil and thus become a parasite, getting more than he gave. To be engaged in advancing the material welfare of a country is not sordid, but sublime.

The Power of the Sun on the Production of Food.

I hold in my hand some bread and milk. What is bread? You can weight it and measure it. You can feel it and taste it. But where dld it come from. A scientist might call this bread "manna." I call it something gotten out of the heavens, out of the unseen, for ninety-eight pounds out of every one hundred came originally from the atmosphere and not from the soil. It is atmosphere and sunshine rolled up together.

In saying a few words about wheat, it is well to know that little things, insignificant in themselves, sustain the life of the world's civilization. It takes between 20,000 and 25,000 grains of wheat to make a two-pound loaf of bread. Grains of wheat may not be much singly, but collectively they are the bread of the nation. 3,500 grains of wheat are swallowed when a boy disposes of his bowl of bread and milk. Wheat may make good flour and good bread and good food, yet if the grains were planted they might not grow. When wheat is four or five years old it is not likely to grow. The story of grains of wheat being held in the hand of an Egyptian mummy for thousands of years and then growing is all legendary. Some seeds which have oily skins may retain their reproductive powers for years, but it is not so in the case of wheat. Wheat grains with vitality are more than substance, they are latent life, suspended animation. The vibration of the sun's rays are so inconceivably rapid that they cannot be understood. But what a gentle yet effective power they possess! I might say to a wheat grain, "Wake up," and I might crush it in the effort to make it obey. But the sunshine says in the sweetest yet strongest way, "Wake up!" and the wheat wakes up and lives—does something. That is sunshine gentle. Sunshine boisterous, mad, illtempered, uncontrolled, is a house on fire. As long as a grain of wheat remains in the granary, perfectly contented, eminently respectable and undisturbed, it enjoys no romance; but as soon as you put it on a field and harrow it, and let the damp soil hold it, and the sun's vibrations thrill it through and through, it feels the aspiration of romance and lives.

The Using of Sunshine from Foods.

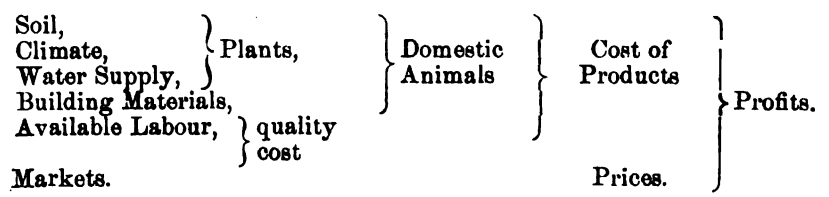
And so it is with boys who are sent out into the world. I would have a boy believe that everything in the world is possible to him. I do not like a lad whether he be sixteen or sixty, to think that there is no romance in life, no unselfish nobility

of life possible for him; for just as soon as he believes that he becomes a selfish and therefore brutish man. But if he steps into the grave of unselfish renunciation for service, he may have the romance of growing up into a beautiful useful life like that of the wheat plant. We do not like dirty jobs, especially if they soil our hands. You may say, "Oh, it is so nice to have soft hands, and wear a white shirt and nice clothes all the time." There is a notion that life is meaner and rougher for having the palms of the hands tough and callous and the backs of them brown. The notion is utterly false. A hard-working boy who soils his hands by honest toil and then washes them, has more to recommend them and him than the lily-handed fellow who soils his hands by accepting money for which he practically gives nothing in return. Every part of the wheat plant is useful for the next crop, and, failing that, for something that is between itself and a higher form of life. There are straw and chaff to provide food for the cow, and thus to enable the boy to get milk for his bread. Man eats the fine part of the plant direct, and the cow or sheep eats the coarse part to elaborate it into finer forms. The sun winds energy into the plant as I wind energy into my watch. The sun rolls its energy into the leaves, and the stalks hold its strength. These are taken by the cow, and they carry the sunshine which has been rolled into them into the cow, the sun lets go inside and warms the cow. The warmth is the sunshine stored up in plants and afterwards liberated. The wheat plant is saying to us, "Go into the sunshine business, it may be that you have capacity and power for giving back sunshine to the world, more helpful and comforting and more easily transferable than I have in my stalk." Bread and butter are sunshine materialized; when eaten they should become sunshine humanized that it may be a blessing to the world; and if the playing out of sunshine into life does not pay you always in cash, it will pay you in the richer currency of happiness. One hundred pounds of flour will make 136 pounds of bread; and since bread is such an important factor in the happiness and health of the people, instead of a girl being required to play sixteen pieces on the piano before being engaged, she ought to be able to make good, wholesome, dainty bread before any man should be allowed to seek her in marriage. (Laughter and applause.) Sometimes the bread appears to weigh about two tons after you have eaten it.

To Realise on Natural Resources.

It is admitted by everybody that the sure way to increase the wealth of a country and to promote its prosperity is for its people to realize on their natural resources, through intelligent skilful labour. The natural resources of Quebec and of Canada are mainly those which can be realized upon through agriculture. The resources of all countries may be classified as, first, those which are inexhaustible, such as soil, climate and water supply. Fertility of the soil is different from the soil itself; the former is a resource which may be exhausted. Secondly, there are exhaustible resources which are not restorable, such as the coal fields, natural gas, and the supply of minerals which once exhausted cannot be restored. Again, there

are exhaustible resources which may be restored but which are liable to deterioration, such as the supply of fish in our lakes and streams and the supply of water in our rivers,—for water-power may be lessened by the denudation of the hillsides of their trees, and the consequent irregularity of drainage and of rainfall. Moreover, there are resources which are exhaustible and are still capable of restoration, with improvement and increase by use. Among these are the resources of fertility of soil, building materials, available labour, and educational attainments on the part of the people. These, while easily exhaustible, can still be improved and increased by use. Coming to point out the resources that Canada possesses for the production of perishable food products, let me use this chart for a moment to show that, for the production of such fine food products as will give Canadian farmers a fair and good chance with their competitors in other countries, we have excellent resources:



In soil Canada has no superior among all the countries where the people follow farming for a living; but fertility of soil is not always a source or assurance of wealth to the people who live on it. I shall use only one illustration to make my meaning clear with reference to that. The people who dwell on the Delta of the Nile live on the richest soil, I think, that lies anywhere under the sun; and they are among the poorest of people who follow the tilling of land for their living. Even with the fertility of the land of Egypt the people stay poor, chiefly because they have not realised upon other available resources, mainly perhaps that of intelligent labour as applied to their calling.

The Climate of Canada Favourable for Agriculture.

We in Canada have a climate which is admirably adapted for growing very large quantities of such plants as are suitable for the cheapest production of cattle products. I don't know any land superior to Canada in that regard. Other countries can grow plants that we cannot produce with success at all, but I don't know any that can produce under the influence of its climate and soil plants that will yield larger quantities of products per acre with a larger margin of profit to the people who produce them. Our water supply is fairly reliable in nearly all parts of the Dominion. These resources enable us to grow fodder plants economically, and, with the added resource of cheap building materials, they enable us to add to the growing of the plants, the feeding of domestic animals with profit. I need only mention that the provinces that lie eastward of Lake Huron are perhaps better off than the prairie prairie provinces of the Dominion, in possessing plenty of building materials easily

available for the shelter of cattle during the period of the year when they must be housed in some comfortable way. Then we have a resource in available labour, which is improving in quality every year. It needs much further improvement.

The Labour of the Canadian Farmers

has been certainly characterised by diligence and every kind of forceful persistence under difficulties; but it has not been of that order until recently in most sections that enabled the people to turn out fine food products. It was largely concerned with the production of grain, fodder and primitive products, by means of labour which was not of a high quality in regard to the experience to turn out fine food products well and cheap. You will allow me to use one illustration in order to get the minds of the members of the Committee into sympathy with my own in viewing this matter. I should not be using a disparaging word about myself in saying that the available labour I have is of a very poor quality as applied to the work for blacksmithing. I should burn a great deal of coal, waste iron, and make clumsy shoes. I have no available labour of high quality for that class of work; but that does not mean that I cannot do other things very well. The farmers in the past have had ability of high order for the work they had to do; but not of good quality or high order for such work as they have to do now and will have to do in the future.

The labour has been of such a nature that the cost has been comparatively low in proportion to the price of the products, mainly because in the production of the thing which we have been selling and exporting, we have applied a great deal of horse-power and have used labour-saving machinery. Thus, we reduced the cost, so far as the labour element was concerned, that entered into the cost of our products.

Profit Between Cost of Products and Selling Prices.

Now, I come to a point that bears directly on this subject—the exportation of fine food products from Canada. No matter how well the farmers may do their work, and no matter how excellent the quality of products they may have for disposal, the profits after all will depend on two things, the cost of those products to themselves, and the prices which they can obtain for those products from the markets to which they are sent. I think the farmers of Canada are in the way of reducing the cost of their products as low as they can be brought. I think our farmers are applying as much of labour-saving skill by the use of the best of methods to the making of what they have to sell, as any farmers are. I think, however, there is still a great loss of possible profit to the farmers of Canada, and also to the men who handle the farmers' products, by the obstructions, obstacles, and difficulties that stand between the producer and consumer in the interchange of commodities,—that stand between the cost of the product to the farmer and the price paid by the ultimate consuming buyer, that unreasonably reduce the profits or wages of the producer, and at the same time unnecessarily increase the price to the consumer.

Law of Supply and Demand.

It may be said there is no use inviting the farmers to go on producing more butter or more cheese, or more beef, or more mutton, or more bacon, or more eggs, or more fruit, unless there is a market for those things, not merely at some price, but at a price which will pay the man who produces them fairly well for his labour. If the price of these products can be raised, you can at once increase the production.

That is the law of supply and demand; not merely a demand for a product at some price, but a demand at such a relatively high price as will leave the man who produces satisfactory returns for his labour and his capital. Then, the demand itself depends upon two things. It depends, I think, largely upon excellence of quality, and then on relative cheapness or lowness of price. If everybody in Ottawa could get strictly fresh-laid eggs during the winter at 20 cents a dozen they would use that kind, instead of eating other eggs at 15 or 16 cents a dozen; and the demand would be so greatly increased that there would be no possibility of overstocking the market at that price. Excellence of quality would make a larger consumption per head by present customers, and lowness of price would lead the common people to eat what only the rich can now afford. And therein lies, I think, a great deal for the Canadian farmers to examine;—whether they could not get the large class of consumers of high-priced foods in England to prefer our fine food products, and so get for a portion of our exports somewhat near the prices paid by the wealthy classes for very dainty food. The production will respond to relatively high prices or profits. Just as soon as the profits increase, just so quickly is there a great enlargement in the production. Let me give an illustration. The high class consumers of beef in Great Britain pay rather more than a shilling a pound for the best cuts, eight pence a pound for the second cuts, and four pence for the third class of cuts of their beef. They often pay higher prices than these, but as far as I can learn that is a moderate average for the very best quality of beef. That leaves an average equal to 17 cents a pound, by the carcase, after allowing for the loss in weight in the retailing of the pieces. In figuring out the actual cost of retailing beef and leaving a wide margin for profit, I find a retailer could sell beef with an excellent revenue for himself if he had clear a cent and a half per pound, after allowing for the loss in weight in cutting up. That is a profitable business. I have allowed nearly a hundred per cent above the actual cost of wages and rent. As the business is done now, it costs a little less than two cents a pound of dressed beef in Great Britain, to pay all the expenses of shipping cattle alive from Montreal, slaughtering them on the other side, refrigerating them there, and selling them on commission. The actual cost during the past year, reckoned on the net weight of beef from animals shipped alive, was rather less than 2 cents a pound from Montreal outwards. Allowing the retailer what I call a liberal margin for his services in this business, and counting the cost for transportation, killing, etc., at what it actually cost last year, the total charges incurred in conveying the live cattle from Montreal and the beef from them to the consumer would be 3½ cents a pound of beef. Taking

the 3½ cents from 17 cents, which is the average price paid by the best class of consumers in Great Britain, leaves 13½ cents per pound, which, it seems to me, might be available for the farmers of the provinces of Ontario and Quebec for the very best quality of beef.

The Original Sources of Foods.

Nobody can create anything. The cow can change the form of grass or hay, or corn or silage, or grain or roots, into milk. The cow can improve or degrade food. Milk contains nearly every material of which we are made, and thus the milk is an almost perfect food. If I put sugar into milk it disappears, it is then in solution. If I put in pepper, however, it stays in its own form, and is in suspension. In the milk there are fat globules which are in suspension. They are so small that they can hardly be seen, but when milk is set they come to the top and form the cream. In a drop of milk there are millions of these fat globules, and these are the things from which butter is made. The more we are able to recover of these the more butter we shall be able to make from milk.

The following chart shows the composition of the human body of average weight 148 pounds:

	Pounds.	Percentages.
Water	90.0	60.9
Albuminoids	26.6	17.8
Fats	23.0	15.5
Carbohydrates	.1	.1
Mineral matter	8.3	5.7
	148.0	100.0

Water is the vehicle used oftenest by nature for the carrying of portions of material from one place to another. The albuminoids, sometimes called "protein," "proteoids," or "nitrogenous compounds," are those which contain about sixteen per cent. of nitrogen. They get the name "albuminoids" from a typical albuminoid, well known to us as albumen, the main constituent in the white of eggs. Albumen is also a constituent of milk. The albuminoids of foods are the "flesh-formers," and while they may be consumed to produce heat in the body, their main function is to nourish and repair the muscles, nerves, skin and other parts of the body which contain nitrogen. A living body needs these compounds to form the muscles, nerves, skin and other parts of the body. In performing the functions of life some portions of albuminoids are worn out from the skin, the muscles and nerves, and are carried off in the sewerage system of the body. We must swallow something to replace what is worn off, else we shall wear out. Therefore we must take in our food a sufficient quantity of albuminoids to maintain the albumoids of the body undiminished.

Then, in the human body are fats for heating and for lubrication. While the living body is composed of certain compounds, every living organism must consume fuel to maintain the warmth or heat.

COMPOSITION OF NUTRIENTS, IN PERCENTAGES.

——	Nitrogen.	Carbon.	Oxygen.	Hydrogen.
Albuminoids	16.0	53.0	24.0	7.0
Fats	none	76.5	11.5	12.0
Carbohydrates { starch	none	44.4	49.9	5.7
Carbohydrates { sugar	none	42.0	51.0	7.0

The albuminoids, fats and carbohydrates come from four elements or sources. Albuminoids only of the three contain nitrogen. Four-fifths of the atmosphere everywhere may be termed nitrogen. The albuminoids contain sixteen per cent. of it, and if we can grow any sort of a plant that will glean it from the atmosphere and make it palatable to cows or other live stock, then we may use the nitrogen from the atmosphere, through the plant first, and the cow or other domestic animal afterwards, for the use of man.

There is almost always such an abundance of mineral matter in the common foods which are consumed, that I may pass over it without further remark.

The uses of food may be stated as:

1. To form the fluids and tissues of the body.
2. To repair waste.
3. To be consumed as fuel.
4. To be stored in the body for future consumption.

The sources of all nutrients, or nourishing ingredients in food are depicted on the following chart:

Sun, Air, Water, Soil } Plant food. } Drainage, Cultivation } Seeds, Plants, Animals, } Food, Service } Man.

In fact, the production of food and the whole range of agricultural operations are but the conversion of some natural force from one form into another.

The following chart shows the quantities of nutrients which may be obtained per acre:

QUANTITIES OF NUTRIENTS PER ACRE.

——	Albuminoids.	Carbohydrates.	Fats.
	lbs.	lbs.	lbs.
Indian corn (9000 pounds dry matter)	873	7,371	288
Horse beans (twelve tons, green)	653	1,814	167
Sunflower heads (seven and a half tons)	352	2,373	729
Hay (mixed, two tons)	271	2,888	97
Roots (carrots or mangels, twenty tons)	480	4,320	68

One object sought to be gained by the feeding of cattle is the elaboration of these crude nutrients into finer forms of food fit for human use. An intelligent man buys milch cows and feeds them on cornstalks; the cow eats cornstalks, and he is able to drink cream. The soil, the plants and the animals are all instruments of conversion; and the objective is an abundance of food and service for mankind.

After providing food for the domestic animals required to elaborate coarse fodders into finer forms, the crops from five acres under a high class of cultivation might sustain five persons in abundance of good food.

The followlng chart shows the composition of some common foods:—

COMPOSITION OF SOME COMMON FOODS, IN PERCENTAGES.

——	Water.	Albuminoids.	Carbohydrates.	Fat.	Ash.
Oatmeal	10.0	15.0	69.0	5.0	1.0
Rice	12.4	7.4	79.4	.4	.4
Pease	15.0	22.9	57.8	1.8	2.5
Beans	15.1	25.5	55.0	1.6	2.8
Pork, fat	10.0	3.0	.....	80.5	6.5
Potatoes	75.5	2.0	21.3	.2	1.0
Beef, rather lean	66.7	23.0	.....	9.0	1.3
Milk	87.0	3.5	5.1	3.7	.7
Wheat bread	32.7	8.9	55.5	1.9	1.0
Butter	12.0	1.0	.5	83.5	3.0
Cheese	35.0	25.8	2.3	34.0	3.7

Of the nature and function of albuminoids I have already spoken. They are known as "flesh-formers" in foods. The carbohydrates and fats of food are termed the "heat-producers." They are the starch, sugar, gums and fibre which are obtained in vegetables, cereals, fruits, etc., and the fat which we obtain in the form of the fat of meat, the butter fat of milk, or the oils from cereals or other plant sources.

CORRECTLY BALANCED FOODS ARE WHOLESOME.

The term "nutritive ratio" is the one used to denote the proportion of albuminoids or flesh-formers in food to the sum of the other nutrients in the food. The heat-producing or fuel value of fat in food is two and a quarter times as great as that of carbohydrates, such as starch and sugar, and also two and a quarter times greater than albuminoids.

That the "flesh-forming" and "heat-producing" parts of our food should be in correct proportion to each other, is important for the health and well-being of the race. In the food of the well-nourished peoples of Europe the proportion is about one of the "flesh-forming" to four or six of the "heat-producing" constituents. In the diet of Americans the ratio is usually from one to six and a half, or from one to eight or nine. If you compare rice with oatmeal you will find that the difference between these has meant a great deal for the race. If a person uses a well-balanced ration, then, barring accident or disease, he will be a well-conditioned, effective individual.

In our experimental work in the feeding of animals, we find that the vigor, healthfulness and apparent contentment of the animals, as well as their profit-yielding capacity, are in a large measure determined by the proportions which these two classes of nutrients bear to each other, as well as to the palatibility and digestibility of the food which is consumed. I think that the same principle might correctly and beneficially be applied for the guidance of people in purchasing and preparing food for themselves.

The Economical Use of Food.

The proportion of waste in some foods is very great. In beef the inedible or waste portion from bones is from ten to twelve per cent.; in mutton, eighteen per cent.; in eggs, from shell, 14 per cent.; and in poultry, from forty per cent. upwards. Three and a half pounds of potatoes have nourishing material equal to one pound of rice; and there are about equal quantities of nutritive material in one quart of milk, in three-quarters of a pound of beef, and in five ounces of wheat flour or oatmeal. The nourishing value of these three quantities may not be quite equal, as the body is sustained by what is digested, and not by what is swallowed; but, since a quart of milk (costing five cents), three-quarters of a pound of beef (costing ten cents), and five ounces of flour or oatmeal (costing about one cent), contain nearly equal quantities of nutrients, there may be a great deal still to learn on the economical use of foods and the preparation of them in such a way as to make them both palatable and digestible in the largest measure.

I have put on a chart, illustrations by lines of different lengths the food value of twenty-five cents' worth of several common foods. The black lines represent calories, indicating the force value or the fuel value of the food. A calorie is a unit designating the amount of heat which would raise the temperature of a pound of water four degrees Fahr. The number of calories which a man needs to sustain him at hard labor is about 3,500 per day. In twenty-five cents' worth of beef at fifteen cents per pound the food value is equal to 1,620 calories. The food value of one dozen eggs at fifteen cents per dozen is 1.860 calories. The food value of five quarts of milk at five cents a quart is 4,062 calories. The food value of twenty-five cents' worth of cheese at fifteen cents a pound is 3,455 calories, so that a pound of cheese is the equivalent of about two and one-fourth pounds of the best beef you can buy

for food purposes. That is why the Englishman's diet of bread and cheese gives him a well-balanced ration at the very lowest cost. That is the reason, you see why, although the cheese market may temporarily pay a low price for it, a large output of cheese is a safe thing in coming years, because it is a cheap food compared with other foods. Men who have to study economy in buying, buy the foods which they like best and which at the same time contain the largest quantity of nutrient for the price paid for them.

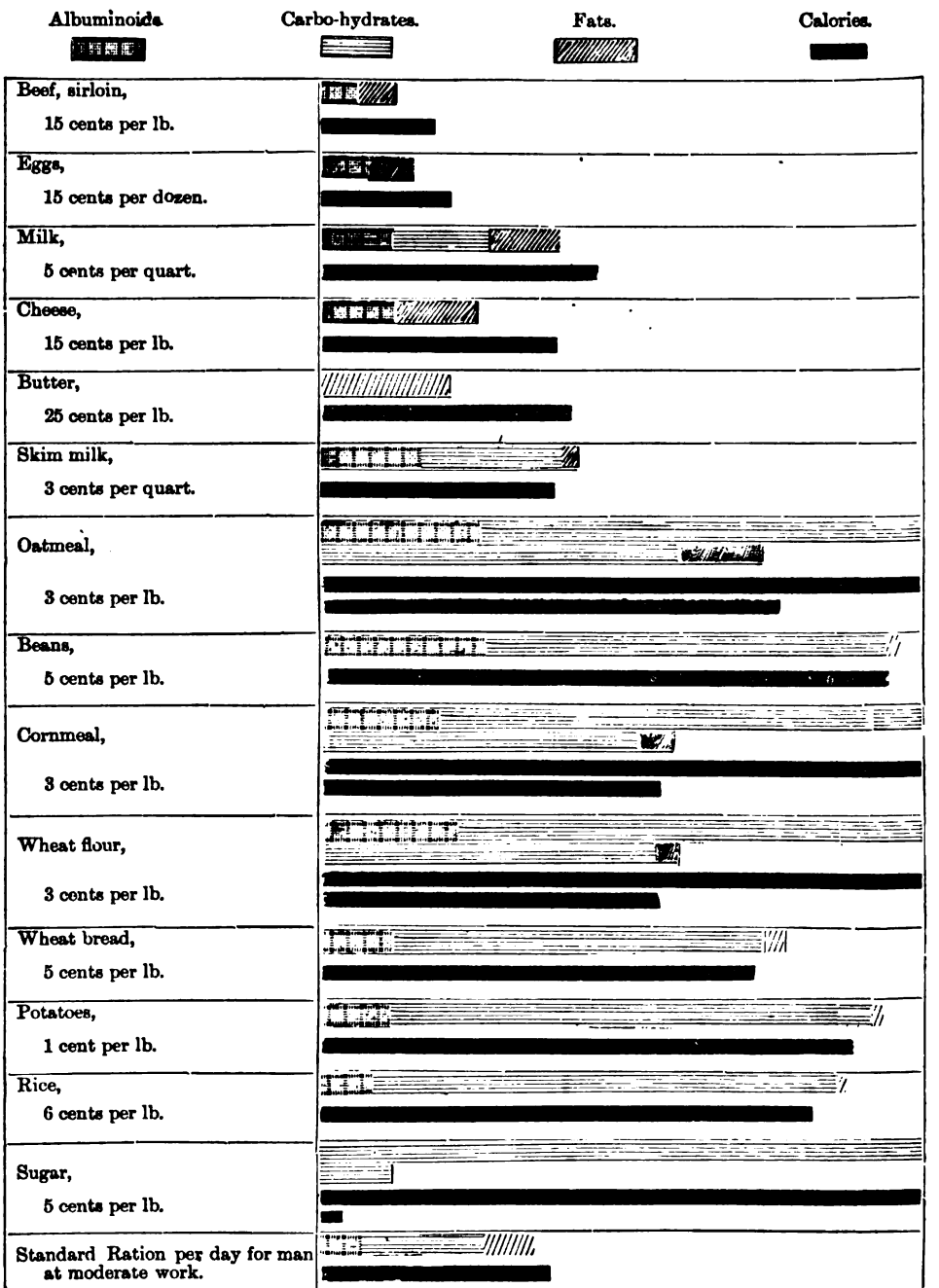
TABLE I.*

Nutritive ingredients contained in 25 cents' worth.	Albuminoids.	Carbohydrates.	Fat.	Calories.
	lbs.	lbs.	lbs.	
Beef, sirloin, 15 cents per lb	.25	.....	.27	1,620
Eggs, 15 cents per dozen	.34	.....	.29	1,860
Milk, 5 cents per quart	.45	.58	.50	4,062
Cheese, 15 cents per lb	.47	.03	.59	3,455
Butter, 25 cents per lb	.01	.....	.85	3,615
Skim-milk, 3 cents per quart	.72	1.00	.07	3,495
Oatmeal, 3 cents per lb	1.22	5.70	.59	15,370
Beans, 5 cents per lb	1.16	2.96	.10	8,075
Cornmeal, 3 cents per lb	.77	5.88	.32	13,705
Wheat flour, 3 cents per lb	.91	6.24	.09	13.705
Wheat bread, 5 cents per lb	.44	2.82	.08	6,400
Potatoes, 1 cent per lb	.45	3.80	.02	8,000
Rice, 6 cents per lb	.31	3.31	.02	6,795
Sugar, 5 cents per lb	.....	4.89	.....	9,100
Standard ration per day for man at moderate work	.28	.90	.30	3,455

*For some of the information in Tables I. and II., I am indebted to Farmers' Bulletin No. 23, by W. O. Atwater, Ph.D., issued by the United States Department of Agriculture, Washington, D.C.

TABLE II.

NUTRITIVE Ingredients contained in twenty-five cents' worth.



I have observed the diets of some of the people of Canada, who cannot afford to buy extravagantly or carelessly, and I find that one can buy for twenty-five cents considerably more of nourishing food than many of these poor people who do not know anything about the nutritive value of foods buy for one dollar. In England, the skilled laborer who earns $500 per year pays about fifty-one per cent. of his earnings for food. In Germany a similar artisan or laborer pays fifty-five per cent. of his earnings for food, and in Massachusetts men in similar stations in life pay out sixty-three per cent. of their earnings for food.

The Woman's Right.

Woman is and always has been essentially the nourisher of the race. When, through her skill or efforts, the community is well fed, even to its poorer members, it is thus made strong to stand all the strain of our modern life upon it.

Amid the clamor of the new-fangled call for new chances for the New Woman one can still hear the unspoken cry of half-nourished bodies asking for better equipment on the part of the women in the discharge of the duty laid upon them in our form of civilisation. This is a much harder class of work to do than those occupations which are termed fashionable and genteel; but, because it is hard to do, it is best worth doing well. It is as much harder to do, as it is harder and nobler to serve well than to shine well; and while the claims of social life, intellectual activities, financial management, domestic duties and artistic tastes become increasingly great, it is unpardonable that the hand of the nourisher of the people should become careless at that task. When boys and girls are grown in well-nourished bodies, the highest possibility will be realised in passing the torch of life on from generation to generation with a clearer, more kindly, unselfish light and life, exalted a little every time by the hallowed nobility of self-sacrifice and intelligent service. "Whosoever will be great shall be your servant, and whosoever of you will be chiefest shall be servant of all." That is how those silent, strong and constant forces can be made to act for good and not for ill.

In the light of history the advancement of nations is often in inverse ratio to the possession of adventitious resources, and while in Canada there is a very great increase in material wealth and in the availability of means for acquiring it, there is more danger of temptation to lose the ideals of useful nationality.

Under conditions like ours, it is still true that most men and women must labor and should labor. The rich man is no more absolved by his wealth from personal activity and effort than is the poor man by his lack of material embarassments. Wealth stands for accumulated power, and hence a wealthy man with personal endowment, who also can control wealth, is under double obligation to accomplish more in life than a poor man who is responsible for his personal power alone. Simplicity of life makes for nobility in life.

Let us have more plain and wholesome diet for the boys and girls of Canada, and depend upon it that bread and milk will lead not only towards more perfect

health, but also towards more beautiful living, and more earnest and effective labor.

The following table shows the total number of animals which are available for food, and whence the supply may be obtained :—

THE WORLD'S LIVE STOCK.

——	Cattle.	Sheep.	Swine.
In the world	298,873,657	534,848,924	102,172,224
United Kingdom	11,207,554	31,774,824	3,278,030
Canada	4,060,662	2,513,977	1,702,785
Australasia	12,632,018	116,153,632	1,026,014
United States	52,378,283	42,273,553	46,094,807

This chart was arranged to illustrate whence Great Britain might obtain the food supplies of a fine sort which she needs. It is Australasia that we have more to fear in the competition with cheese and butter than any other quarter. The numbers of cattle there have been increased within the last eight years by more than our whole stock. Their increase in eight years has been over four millions of cattle, and they are going to be very formidable competitors of ours in cheese and butter products. In the United States there are large herds of cattle, sheep and swine. I point out this fact, also, that it is no wonder that the Australians possess the English market for preserved and frozen mutton, because they have such enormous flocks of sheep compared with any other country.

BRITISH MARKETS FOR FOODS.

The British people, as seen through their markets, are great eaters. That is their chief characteristic, and they talk about their food more than any people whom I have ever met. They do not confine all their talk to their food; still, they talk a lot about what they eat. The British people have won for themselves a most distinguished place in civilisation. In our little social circle we arrange those who sit at the table and those who wait at table into two classes, and we think in our little way that those who sit at the table are a little better off than those who wait at table. The producers of all civilised nations are to-day seeking the privilege of waiting at the tables of Great Britain. Do not you go about the country in Canada thinking we are a little folk who do not amount to much. The people of the United States, France, Germany, Austria, Italy, Spain, Denmark, and all the rest of them, are the waiters at the table of Great Britain and are seeking the favor of doing it. We are a part of that Empire on whose table the peoples of the earth are waiting. We ought to have a rather better show in our mother's

house than other folks. We have not been having it in the past, and I hope that in the near future we shall be able to let our mother know that it is wiser and safer and better to get pure butter from Canada than oleomargarine from Holland or any other place; that it is better policy to plan to get her fruit and flour and meat from within her own borders than to leave other nations in a position to say, "we can starve you out if we cannot frighten you out." Canadians should say to Great Britain, it will pay you to get butter for your market from Canada and cheese for your market from Canada; and now is our chance to show that we can supply these things in plenty and of excellent quality and capture this market. I say this because now is the most opportune time to get some advantage, if only a preference on the part of the consumers, for colonial rather than foreign products.

The imports of fine food-products into Great Britain in 1894 are shown in the following table:

BRITISH IMPORTS, 1894.

	Value.
Animals living (for food)	$ 44,237,455
Dressed meats	110,594,951
Butter	65,489,268
Margarine	14,818,075
Cheese	26,644,708
Lard	13,424,292
Milk (condensed and preserved)	5,252,277
Poultry	2,340,246
Eggs	18,426,118
Fruit (apples, plums, pears, grapes)	12,459,544
	$313,686,934

These ten items of England's bill for foods imported, come to over $313,000,000. Let me make one remark before I leave this part of the subject, that while Canada sends to Great Britain a very large proportion of the cheese she imports, the cheese item in Great Britain's bill is one of the smaller items; and we might somehow and soon get a larger share of some of these bigger items. Of butter in 1894 we sent from Canada $438,000 worth out of $65,500,000 worth. We might also get a share of the item for condensed milk.

The difficulty in making any headway with that in Great Britain has been that condensed milks are a good deal like patent medicines in a way. They are bought in proportion to the advertising they receive. When the Nova Scotia company began to introduce their product a few years ago it met with no commercial success, because the advertising expenses were so heavy the company could not continue to meet them from the sales. If a few depots could be started in Great Britain where this product could be put before the public continuously, at a small cost for advertising they would soon recognise the excellence of the product, as they have recog-

nized the excellence of our cheese, and thus we should get a good demand for condensed milk from Canada.

Foods Consumed Per Head in Great Britain.

Of beef the annual consumption is estimated at 65¾ pounds per head of the population. The following table will illustrate the point I desire to make. It is the estimated consumption per head of population in the United Kingdom for the year 1892:—

	Lbs. Consumed per Head.	Lbs. Imported per Head.	Lbs. Home Products, per Head.
Beef	65.7	15.4	50.3
Mutton	28.3	5.4	22.9
Pig Meat	28.6	14.3	14.3
Other Meats	2.2	2.2	....
Butter	15.0	9.5	5.5
Cheese	13.5	5.5	8.0

The prices obtainable in Canada for cheese are largely determined by the output of cheese from the dairies of England and Scotland, where it is estimated they make 8 lbs. for every 5½ lbs. imported from other countries.

Great Britain obtains her supplies of dairy products from the countries shown hereafter:

British Imports, 1894:—Butter and Cheese.

	Butter. Quantity cwts.	Butter. Value.	Cheese. Quantity cwts.	Cheese. Value.
From Canada	20,887	$ 438,589	1,142,104	$13,086,204
" United States	29,996	612,942	672,347	7,827,571
" Denmark	1,102,493	28,440,576	.....	.....
" Australasia	292,097	6,959,221	54,375	669,225
" France	424,645	11,445,753	52,969	794,897
" Sweden	266,306	6,880,391	.....	.....
" Holland	165,157	4,048,828	298,693	3,702,730
" Germany	137,755	3,421,072	.....	.....
" Other countries	135,999	3,241,896	45,657	564,081
Total	2,327,474	$65,489,263	2,266,145	$26,644,708

Canada is well in in supplying cheese to Great Britain. She now furnishes over 50 per cent. of the total quantity imported there. That has been brought about mainly by the excellent quality and by the means which have been taken to get Canadian cheese and its quality recognised under its own name all the way through to the consumers. The Canadian trade in butter is a growing one, and the shipments of fresh-made creamery butter in cold storage compartments during the current year have given it a better name than it had been able to attain hitherto. A very large trade in that product is coming in the near future.

The little country of Denmark, which is not nearly so large as Ontario, and which certainly has not so intelligent a population, sends nearly half the butter that Great Britain buys, and this is the outgrowth of not more than twenty years' effort, on the part of the Danish people. Twenty-four years ago they were not "in it," but afterwards attention was directed that way, and now they have the magnificent revenue of over $30,000,000 a year for butter sent to England, and have increased the exports of dressed meats tremendously. They are among the best off people of all the nations of Europe.

Australia too, has come into the markets and sends an appreciable quantity of butter to England. People say to us sometimes, "You are too far off." We are not half so far off as Australia, and Australian butter comes fresh flavored and sweet into the British market. Distance is not so difficult to overcome as it is said to be. France sends more than Australia; Sweden sends some and Germany sends some.

Preference For Names.

England buys from whoever sends her the best quality of what she wants at the lowest price. There is one peculiarity, in this connection, that I may mention. The British are great sticklers in the old country for respectability in name, as to the food-products they buy and eat. The English purchaser will not buy equally good food from two countries at the same price, unless the food bears an equally respectable name. The purchaser over there is guided a good deal by the names of things; he has got into the habit of buying in that way. I once went into a shop over there and found the best Canadian cheese selling at 6d. per lb., while the best Scotch Sheddar was selling at 10d. per lb. at the same counter.; and yet the Canadian cheese was superior in quality, flavour, appearance and nourishing properties. That was 14 years ago, when the name of Canadian cheese was not as good as it is now. You can now get Canadian cheese offered under its own name and there is no discounting it on that account. But in other things it is not so, as for instance, in beef and meat products. The meat which sells best in the retail shops is labelled "best Scotch." I do not know that it is raised and fed on Scotch farms; possibly a good deal of it is brought up and reared as far west as Calgary, in our own Northwest country, and acquires the good name of "best Scotch" when it reaches the hands of the retailer who deals in it.

Transportation Charges.

Before passing on to the next point let me refer to the opinion which has prevailed in the minds of a great many of our people, that distance from market was the great obstacle to successful admission to the British markets, and also that the great absorber of profits was the circumstance of being so far away from market. I have made some examination of that question and do not find that distance bears any special relation to the cost of transportation. Those of you who have studied political questions in the larger sense, will remember a remark made once about the British farmer, that he would be sufficiently protected always by the circumstance that his competitors had to pay freight on the goods which they sent in from abroad. Now, the freight charges on our fine food products are a very small proportion of their value to the farmers here. I am going to base my statement on the prices the farmers here realise, and not on the prices the consuming purchasers pay, on the other side of the Atlantic. The actual freight charges on cheese shipped from Ontario and Quebec, whence the most of our supplies are sent, do not exceed 5 or 6 per cent. of the value of the cheese as sold at the factories. That is the total cost for freight charges between the nearest shipping station in Ontario and Quebec and the ports of London, Liverpool, Bristol and Glasgow. I doubt very much if the English and Scotch farmers or dairymen get their cheese carried to the markets for more than one or two per cent less than we do. I have not at hand the details of transportation charges in Great Britain, but I have enough information to show that the average cost of freight over there will be nearly 3 per cent of the value of their cheese, while the average cost of ours is about 5 per cent. In that respect Canadian farmers are not far behind their English and Scotch competitors.

The average freight charges on our creamery butter before cold storage was put on did not exceed 2½ per cent to us, and with cold storage it would not exceed 4 per cent, on the value of the product at the station of shipment, from Ontario and Quebec to Great Britain. I am not speaking of charges for commission, etc.; I am speaking simply about transportation services and charges.

The average transportation expenses on live cattle, from stations in Ontario and Quebec to the ports of landing in Great Britain, have been from 25 to 30 per cent of their value at the point of shipment. The great obstacle which has hindered us from getting the best class of customers, and the high prices paid by them in Great Britain, is not distance, but deterioration in quality during transit. Deterioration of quality is not a necessary factor in distance or in length of time. It has been so with us, and this is why we have been hindered from getting relatively higher prices, and the best class of buyers from being our regular customers.

Qualities in Butter.

Let me next mention what are the essential qualities in butter which people are willing to pay a high price for. It is not correct to say the value of butter depends on the quantity of fat it contains, because you can have butter which is not

saleable for three cents a pound, and contains just as much fat as another butter which sells for twenty-three cents a pound. It is the sort of thing we call flavor that fixes the value. It is not the nourishing properties; it is the satisfying properties. So flavor is the most important quality of butter. The flavor of Canadian butter, when fresh made, is superior to the flavor of Danish butter when fresh made —not merely equal to it. We have been modest as a people, and have said nothing, while the Danes have been getting the English papers to write up their butter because it was fashionable to do so. We have suffered, also, because the flavor was not nearly so good in our butter when it reached the English market as it was when made. Danish butter gets to the British consumer without any deterioration, so that it is just as good when it arrives in England as it was in the Danish creamery. If we can do what they do—get the butter from the place it is made to the place it is eaten without spoiling in transit—we can out-do them in the price obtained.

I need not say anything of the body of Canadian butter. It stands first in solidity of all the butters that go to the British market. It is too yellow in color to suit the British consumers. They will pay more for a light colored butter. Let us, therefore, make it the least little shade away from being a lardy color.

Then Canadian producers have been putting too much salt in their butter for the people of England, who like a comparatively mild and fresh, that is not salt, butter. Half an ounce of salt to a pound of butter is enough in most cases; and the salt should be of fine grain and pure quality.

Two things are objectionable in dairy salt, one is a coarse, insoluble grain, and the other is a limy substance which has the effect of giving the butter a limy flavor.

I would use the finest Canadian salt. It is quite as good as the best I have seen in most parts of the Empire.

Need for Clean Nice Packages.

In some other respects our butter needs improvement. Butter does not taste any nicer for being in a nice package, but the Englishman thinks it will, and he pays for what he thinks, and not for what you or I think. I know a nice school girl about ten years of age. I suppose if she had a tawdry looking dress on, with her face unwashed and her hair all unkempt, she would be just as good a girl as when she steps to my side neatly dressed, with tidy hair and her face aglow with the bloom of restful cleanliness. Still I should not like to have her by me so well in one case as in the other. So the English shop-keeper, who does not care to have his shop tawdry, and is looking for a high-class of butter, does not like to have his customers see a cheap looking lot of butter about his place. He says, "Oh, that butter in unsightly packages belongs to the low-grade shops," and it has to go for a low-grade price. Let us have clean packages, that look nice. Let us have a package, too, capable of keeping the butter without injury to the quality. The square packages, which hold fifty-six pounds, can be bought for sixteen cents, and can be lined

with paper for not more than one and a half cents a box. The butter in such packages can be packed closely in the refrigerator compartments on the steamships and no space is lost.

The Preservation of Butter.

That you may follow my argument and see the proof of it as clearly as I am able to put it to you, let me go back for a moment to the process of making the butter. When a buttermaker begins the manufacture of milk into butter he either puts in what he calls a fermentation starter or exposes the milk or cream to the air and lets things fall into it which start fermentation. The atmosphere is filled with all sorts of things that cause fermentation. That is a fermentation starter which changes sweet into sour cream, and by and bye, if left long enough, into decayed cream. Now, when the cream is churned and the butter is taken out of the churn, a small quantity of these minute forms of life are retained in it, and they go on working a change and spoiling the butter. So you have to deal with this fermentation starter. Now, if you have a fermentation stopper, you can hold the butter quite unchanged. Fermentation makes no progress at the freezing point of water, so if you keep the temperature down to 32° you have a fermentation stopper, and the fermentation starter will do no harm. If a pound of nice butter is made in the best way, and kept till it is two days old, allowing the fermentation to go on slowly to ripen the flavor, and it is then put down to a temperature of 32° and kept in a closely sealed package in a dark place, you can keep it for three or six months, and it will not have changed so much in that time as it would in three hours at a temperature of 75° in your pantry. So the difficulty of safe transportation is not great if you stop fermentation. If butter is made in June and kept at 32° in a dark place in a fairly close package, no man can tell in January whether it is three days or six months old by any difference in the flavor. That is what the Australians have been doing, shipping their butter 9000 miles and getting it fresher to the consumer than butter sent thirty miles in a warm car in England.

Now, I come to this as being a thing we ought to do. We ought to make some provision for getting our butter to the English consumer in its best condition. That is the essence of the whole question. If you can do it you can win his preference and his price. One thing more we want to do—we must get it there in our own name, so that people will know whence it comes and ask for it again—so we will work up a permanent trading connection with them.

Safe Carriage of Butter.

If it be important to get the butter there in the best condition, then, provision must be made for preserving it in that condition before as well as during shipment. What provision exists at most creameries? Well, they have a so-called cold storage room in the creamery. I have never been anywhere in a creamery where the temperature would stand at an average lower than forty degrees, with the single

exception of the Renfrew creamery. What happens? The butter is put into the store-room or cellars at forty-five degrees, and the creamery man says: "I don't care to sell," and goes on making butter. "I will hold till the whole month's make is ready to sell," and the price is going up; the flavor is also going up (laughter). Being Scotch, the creed of my marketing efforts is to get the most money I can for what I have to sell. That is a different thing from selling every week, or not selling every week and putting the butter where it will spoil in the meantime. I have not said "Sell every week," but "sell when you like, and in the meantime keep the butter where it will not spoil." If a creamery cannot afford to have a cold storage room, where the butter can be kept at a temperature of thirty-two degrees, let it be shipped every week to some place where it can be properly kept, and if it is to be kept for an expected butter market, or for any other reason, let it be held there without deterioration. I do not think it pays a creamery now to have a large building for that purpose, because the proper storage accommodation costs a good deal, and where the creameries cannot chill it themselves and keep it cold, it will pay to ship to some place for that purpose. That requires, as a next step, accommodation on the railways by which the butter can be taken to these central or safe cold storage places every week. Now, last year, in connection with the cold storage system, we arranged for a service on the railways whereby a refrigerator car was run once a week for the carriage of butter. The creameries of Quebec used these cars quite largely, so that the Government guarantee on some of the routes was not called for there at all. But over the Province of Ontario the cars were used very, very little, indeed, and butter was held until the flavor was partly spoiled, while these cars were running empty most of the time. We gave the same chance last year for shipping dairy butter as for creamery butter in this way, and dairy butter did better too where shipments were made up promptly. Let us get this into our heads, that butter begins to change in condition after three days if kept above thirty-two degrees, but if you keep it at that temperature then you can hold it any reasonable length of time. We propose to continue the cold storage service this year, and I hope the creamery men and merchants all over Canada will see that their butter is put in a safe place before it begins to spoil; that will get us a good name instead of a bad one, and we shall find our entrance to the British market easier and more profitable to ourselves.

Fluctuations of the Market.

That brings me to another part of my subject. I want to try to make it clear what a market means to the man who has butter to sell. What is a market? It is a place to exchange commodities in. It used to be that a man would exchange furs for blankets and bacon, etc. Nowadays, by the use of the medium which we call money we do not make the exchange of furs for blankets and bacon. The process is different but the end is just the same as before; and so when a man has a tub of butter to exchange for something else, he has to recognise two things: that the

butter has *an intrinsic value* as food that does not change much, and that it has *an exchange or market value* which varies often and greatly. A tub of butter in June has the same intrinsic value as food as a tub made in July, if it is made well. If it is not, it does not gain in value although it "goes on from strength to strength continually." Now, while the intrinsic value of the butter, if preserved, remains the same, *the exchange value* fluctuates all the time. I may get $10 for a tub to-day for which I might get $8 or $12 two months hence, and that is where skilful commercial "gumption" comes in, which we have not got any too much of just yet in this country. I am not taking the record of one year only to support a theory, because the fluctuations last year were almost the same as for the last ten years. I am taking the best butter first. The Normandy butter from France stands away above the Danish butter. We have in Canada the conditions for making butter just like the French butter. Our flavor and body are more like theirs than any I have seen.

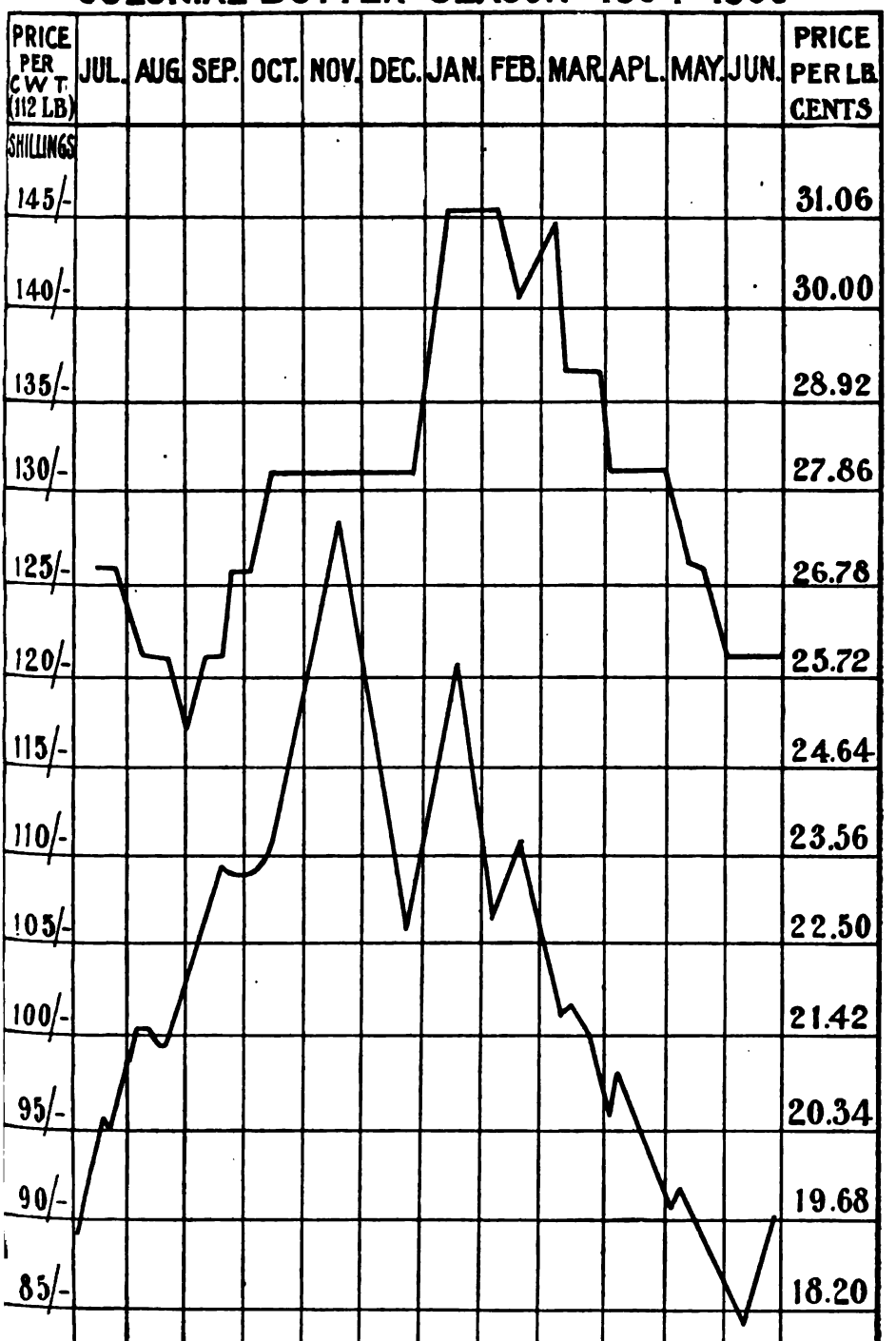
I have a chart here* to illustrate the comparative prices obtained in Great Britain for butter in 1894. The upper line represents the prices obtained during the several months of the year for Normandy and Brittany butter from France. The lower line shows the prices obtained for the finest Danish, Swedish and Kiel during the same months in the year.

You will perceive that the price is higher from October to March than from March to October. What this chart illustrates has been repeated annually for the last fifteen years. It is not any mere temporary incident that the price of butter was higher from November to March in 1894-5 than during other months. That is why I have been advocating for the last eight or nine years the need for Canadian creamery men—not to speculate in butter but—to provide cold storage accommodation for the holding of butter made in June, July and August, until at least October or November, in such a way as not to spoil the quality, and then to get it into the market when the prices are best.

The annual average price of Danish butter f.o.b. at Copenhagen for the last fifteen years is given at 135 shillings per cwt. in 1880, to 93 shillings per cwt. in 1894; or from about 29 cents per lb. in 1880 to 20 cents per lb. in 1894.

*N.B.—See next page.

COLONIAL BUTTER SEASON 1894-1895



*NOTE:—The upper line denotes the prices obtained in Great Britain for Normandy and Brittany butter: the lower line denotes the prices for finest Danish, Swedish and Kiel butter during the several months of the year.

Take the price of nine or ten years, and from November to March it is about six cents a pound above the price of the rest of the year. Does that not mean that we ought to try to exchange our butter at a time when it has a high exchange value, or in other words, when it sells at a high price per pound. It is as clear to me as noonday. Why should I exchange something which I have when its value is lowest? Of course I do not want to, and will not when I can help myself. Then, take the Danish butter. There seems to be a uniform fluctuation upwards to October sustained to March, and then the price goes low again. That means we should have our summer butter made in June, July, August and September, kept in safe, cold places, and sent to Britain in October, when the demand is best and the price is comparatively high for that class of butter.

Cold Storage on Steamships.

To do that, we need cold storage somewhere accessible to the creameries. There are now three large buildings in Montreal (or will be next summer) where cold storage can be had at any temperature, from twelve degrees upwards, for very reasonable rates. Last year, to encourage the creamery men to store their butter which was to be held, the Government agreed to pay half the charges. That may be continued this year. Then there have been cold storage services on the railways and steamships, which will be very much improved. Last year we had cold storage on the steamships, which kept the butter after it was taken on board. We used insulated compartments, and they did very well. It was like a log house in the woods, which served the purpose capitally until the people were ready for something larger and better; and if a settler had built a mansion in the woods, in the first place, he would not have stayed long in it. So we began in a simple, inexpensive way, and there was no failure. But now the time has come when we should put refrigerating compartments on the steamers. On one line of steamships at least, it is expected there will be cold storage accommodation for the carrying of dressed meats, cheese and fruits at suitable temperatures, so that they may be landed in the English markets without any injury.

One thing more needs to be considered. When arrived at the other side in first class condition, our butter needs to be made known in its new condition under its own name. Somehow, Canadian butter has received a bad name, and it is not easy to recover from the incubus of that. It is needed to call the attention of the British people next summer to the fact that we are giving them butter of a different character from what went from Canada in the past.

Bona Fide Speculation Is a Good Factor.

A little talk is sometimes indulged in, by those who perhaps do not follow the bearings of this question in its entirety, to the effect that if any man holds butter which he has bought from June till October, he thereby becomes a "speculator," and by throwing that epithet at him they suppose they have altogether discomfited him. I am not an apologist for speculators, but a man who buys on speculation merely proves his faith in the future of the market for his purchase. So if a man

buys butter for his own good money in June and holds it till October, he has faith in the market, and is a good factor and not a bad factor in the market. Take our cheese trade; the factories are only making on the average five and a half months in the year. If the Canadian buyers sent it all over in five and a half months it would be cheaper there; in fact, it might be unsaleable. Legitimate and *bonâ fide* speculation is a good factor in commercial life, and when I meet a farmer who has the notion that a speculator has always an injurious influence on his business, I differ from him. I favor new methods of trying to help the farmers to get our products to the market in the best way, and I would brush aside every middleman who stood between to hinder the producer from getting his rightful share of what the consumer paid. (Applause.) But if you have no middleman between, you cannot get the other two together. The buyer who helps in the transaction is entitled to get his share. In that sense let us get our butter to the British market through the regular commercial agencies, trying to get it over in a safe, unspoiled condition, giving an equal chance to the merchants who use their courage, skill and capital, and to the manufacturers to increase their profits. (Applause.)

Chilling versus Freezing Butter.

Everybody says if you freeze beef, as soon as it thaws it spoils. When you freeze beef, the cells, which contain protoplasm, are burst. and when it is thawed the juice runs out and it spoils. If butter be kept so cold that the brine in it becomes frozen, the butter will be opened by the expansion of the brine, and thus the air will be admitted; but in order to bring that about the brine must be frozen. Unless the brine is frozen the butter is chilled only and not frozen. The chilling does not open up the grain to let the air in, and consequently it is no more liable to spoil afterwards than if it had not been chilled.

Suggestions For Improving The Egg Trade.

In case I might not come to it again, let me make a remark here in regard to the item of eggs. Canadian eggs in Great Britain do not stand very well yet, as compared with the eggs from France or the eggs even from Australia and from some of those other countries close by. The greatest drawback to the success of our egg trade has been, I think, that the egg merchants, as far as I can find out by inquiry, collect eggs perhaps once a week or twice a week from all customers and from all sorts of places. The egg-waggons bring in some eggs fresh from the nests, some from the farmers' houses and some from shops, where they have lain in the sunlight of a window for ten days or more. Complaints in England are, that taking 120 eggs, 100 are fresh and 20 are stale—not rotten or decayed, but just stale—and that causes a lower price and less satisfaction for the whole lot. The result is the same as if a shipper of butter were to ship 100 packages of the finest creamery butter, and to put 20 packages of decently good dairy butter in the same style of package, and mix them all through the lot. There is not any butter in the lot that is bad, but the mixing of the 20 packages of irregular, ordinary butter with the finest creamery butter would lower the prices for the whole lot (hear, hear.) It

would be a fair way of encouraging the egg business if our merchants were induced to collect a quantity of eggs direct from the farm-houses twice a week and have them branded as fresh laid. If this were done and the eggs put into cold storage and shipped that way, they would get to Great Britain in as fresh a condition as though they were only four days old. The difficulty has been in preventing the mixing of eggs that are a little stale with the fresh-laid eggs.

I think that the comparatively low prices that Canadian farmers are getting, compared with the prices that are paid for the best class of products in Great Britan itself, are due in a large measure to the inefficiency of the commercial agencies that exist in this country for handling our perishable food products.

At this stage of Prof. Robertson's address, the Honorable Mr. Beaubien announced that he was obliged to leave by the Halifax train and the Chairman called upon him to address the meeting before his departure. (1)

Professor Robertson (continues his address)—I will now tell you what is under contemplation towards giving our dressed meats, beef and mutton trade, a position as good on the British Market as has been won by our cheese.

Since the Honorable Minister of Agriculture expects the people of Quebec to do such great things, then the people of Quebec need to be a very great people, and I think if the people of Quebec are going to be, (as I hope they will be), all that is predicted they are to be, then the other parts in the Dominion will share in the advantages from their progress. The live stock interests of the Province of Quebec and of the Dominion of Canada are inseparably interwoven with all the methods and processes of farming required to maintain the fertility of the soil, to insure rotation of the crops, and to earn profits. If our cattle business fails, our farms grow poorer, our coarse grain and fodder crops become unsaleable. As a safeguard, we must see that the live stock business is put in a position to do the most it can do for us.

Great Britain draws her enormous supplies of cattle and beef mainly from the United States and Canada, as the following table shows:—

VALUE OF BRITISH IMPORTS OF BEEF, 1894.

FROM.	Cattle.	Fresh Beef.	Salted Beef.	Preserved Beef.	Meat Unenumerated.
Canada	$ 6,552,349	$	$ 20,070	$ 39,503	$ 3,426
United States	32,914,561	18,134,840	1,619,349	2,068,413	304,157
Australia	.....	2,139,099	20,109	996,309	158,513
Other countries	853,638	232,675	8,833	835,772	1,532,761
Total	$40,320,548	$20,506,614	$1,668,361	$3,959,997	$1,998,857

(1) Mr. Beaubien's speech, or rather an abstract of his two speeches, one in English the other in French, will be found on p. 228.

NUMBERS AND QUANTITIES OF BRITISH IMPORTS OF BEEF, 1894.

FROM.	Cattle.	Fresh Beef.	Salted Beef.	Preserved Beef.	Meat Unenumerated.
	No.	Cwt.	Cwt.	Cwt.	Cwt.
Canada	82,323	.....	2,729	3,672	671
United States	381,932	1,775,538	235,120	205,485	34,315
Australia	.....	304,513	3,375	70,602	10,569
Other countries	11,185	24,053	1,087	11,067	144,202
Total	475,440	2,104,104	242,311	290,826	189,757

We had a rather larger share in 1895 than this table shows. Lest some of you should find a difference when you come to compare this table with the figures that appear in the Canadian Statistical Year Book, I should say that these figures are taken from the British returns, in which the year ends on the 31st December, while our financial year ends on the 30th June. According to the chart, Canada sends no fresh beef. I think there was a very small quantity sent during the year, but the English returns show none. I have nothing to say about the salted and preserved meats because I do not think we shall send salted beef or preserved beef in any appreciable quantity from Canada. We shall have to confine ourselves to sending either live cattle or fresh beef, or in all likelihood a quantity of both for many years to come. In proposing a plan for opening up a trade in dressed beef, nothing has been contemplated that would even hint at injuring the trade in live cattle. But if Canadians could have an alternative outlet for cattle and meats, every man who sends live cattle to England would be rather better off, by having two markets instead of one available. I do not think the shipments of live cattle from Canada are going to be ended at once by any new plan that may be suggested or put in operation. I offer only a few remarks about our possible competitors in the shipments of live cattle.

SHIPMENT OF CATTLE FROM AUSTRALIA.

There is no risk of Australia competing successfully with us in shipping live cattle. One shipment was sent from thence to Great Britain in 1894, and the facts are:—They went by a steamer called the "Southern Cross." The actual freight charges amounted to about $39 per head. The charges, including freight, insurance, fodder and attendance, amounted to $68 per head. The cattle were sold for $88, leaving only $20 a head for the animals at the port whence they were shipped. In a shipment of sheep from Australia by the same steamer, the freight alone amounted to $2.50 per head, and the freight with fodder, attendance and insurance came to $6 per head.

British Imports of Sheep.

The following table shows the value of sheep and lambs, and the value of Mutton, imported into Great Britain in 1894:—

FROM.	Sheep and Lambs.	Mutton Fresh.	Mutton Preserved.	Preserved Meats, other sorts than Beef or Mutton.
Canada	$1,149,035	$	$ 12,760	$ 21,511
United States	1,678,236	240,335	37,395	1,266,745
Denmark	391,362	.....	.....	.....
Argentine Republic	621,945	4,665,426	.....	.....
Australasia	.....	13,495,009	887,696	435,950
Other countries	76,227	2,726,534	11,957	621,712
Total	$3,916,805	$21,127,304	$949,808	$2,345,918

The following table shows the number of sheep and lambs and the quantity of their products imported into Great Britain in 1894:—

FROM.	Sheep and Lambs.	Mutton Fresh.	Mutton Preserved.	Other Sorts.
	No.	Cwts.	Cwts.	Cwts.
Canada	135,622	.....	1,258	2,320
United States	198,139	23,121	3,626	68,394
Denmark	65,439	.....	.....	.....
Argentine Republic	73,446	585,729	.....	.....
Australasia	.....	1,439,502	106,619	43,965
Other countries	11,952	246,714	1,425	35,703
Total	484,597	2,295,036	112,928	150,382

Looking at the imports of Great Britain we find that of the sheep and lambs, Canada, in 1894, sent 135,622 head. The number was greatly increased during the past year with the result that there has arisen an agitation against the trade, and it is complained that Canadian sheep suffer from scab. If our sheep and lambs could be sent into Great Britain in the dressed meat form, I think it would be much better. It would cost less for carriage, and yield better returns at the port of ship-

ment. To that chart I may add one remark, that the home supply of all meats that the English consumers buy is the main source of supply.

Until recently, New Zealand mutton has gone to England mainly in the frozen state. It is held that by freezing it, injury is caused to the texture or flavor. With the arrangements which we propose to make for cold storage compartments I see no reason why Canadian mutton should not be sent into the English markets and take a place very near the Scotch mutton. We have done so already with cheese and I do not see why we should not do it with mutton.

Swine Products.

The following table shows the value of the quantities imported into Great Britain in 1894: —

FROM.	Pork, Fresh.	Pork, Salted.	Bacon.	Hams.
Canada	.....	$ 49,898	$ 2,557,205	$ 619,312
United States	$ 44,676	1,152,806	24,737,028	12,805,525
Denmark	24,713	391,265	10,656,005	27,438
Holland	1,540,173	9,432	307,574	.....
Sweden	.....	9,485	965,011	.....
Other countries	514,962	20,153	118,761	37,288
Total	$2,124,524	$1,633,039	$39,341,584	$13,489,563

The imports of swine products are enormous and are continually increasing. The following table shows the quantities imported in 1894:—

FROM.	Pork Fresh.	Pork Salted.	Bacon.	Hams.
	Cwts.	Cwts.	Cwts.	Cwts.
Canada	.....	7,702	254,443	50,576
United States	4,339	150,186	2,561,203	1,075,270
Denmark	2,015	61,360	766,828	1,785
Holland	133,526	1,935	23,666	.....
Sweden	.....	1,791	72,541	.....
Other countries	40,503	2,045	10,923	2,153
Total	180,383	225,019	3,689,604	1,129,784

Canada sends no fresh pork, a little salted pork, and a considerable quantity of bacon and hams. I should like to say, in connection with this chart, that last September, the pork packers in Wiltshire, where there are the great packing houses for England, were paying 9½ cents per lb., live weight, for swine weighing from 150 to 160 lbs. I know that it is not fair to pick out the high prices, for a high class article with a very limited trade, and try to apply them to the products of the country generally, but it seems to me there is room for opening a fairly large trade by sending fresh pork to the United Kingdom, either to be sold as fresh pork or to be cured over there.

Plan Proposed for Opening Up a Trade in Dressed Meats With Great Britain.

To give stability to the profits of the farm, and thus to insure prosperity to the whole country, it is necessary that all perishable food products from Canadian farms should secure as good a place, relatively, in the British markets as has been won by Canadian cheese and creamery butter. Judicious and energetic action by the Government can accomplish as much for beef, mutton, pork, poultry, and other food products, as has been done for cheese and butter. It is most urgent and desirable that something should be done, particularly for beef, mutton, lamb and poultry.

Falling Off in Numbers of Cattle Exported From Ontario and Quebec.

There has been a decided falling off in the numbers of cattle exported from Ontario and Quebec since 1890. The following table shows the numbers shipped from Canada to Great Britain.

	Cattle.	Sheep.
1890	122,182	43,780
1891	118,947	32,157
1892	98,755	15,932
1893 *	80,899	1,780
1894	82,217	121,304
1895	96,546	255,508

* For ten months only.

The figures from 1890 to 1894, inclusive, are for the years ending 30th June, and the figures for 1895 are taken from those published in the Montreal *Gazette*, compiled from the returns of the weekly shipments during the period of navigation. Of the 95,564 cattle shipped in 1895 it is reported that over 40,000 came from Manitoba and the North-west Territories.

Advantages of Government Management to Start the Business.

Much benefit would result to those engaged in the cattle trade and to the agricultural interests generally by the opening up of a business by which cattle would be slaughtered in Canada, and dressed beef sent direct to the consuming purchasers

in Great Britain. There are many transportation and commercial difficulties in the way which no private individual or joint stock company can successfully overcome. The business is one which is urgently and essentially important to the welfare of Canadian farmers, and because the Government can remove or overcome the obstacles to its successful establishment without the expenditure of a large, if of any, sum of money, it seems fitting and proper that the Government should take it up.

That this business cannot be inaugurated from Canada by private enterprise is evident from the tremendous disabilities from which the great United States packers and shippers, backed by millions of dollars, have not been able to escape. The Government control of this business would win for it a status and a name in the United Kingdom, which no private individual or joint stock company could ever secure. The prestige of powerful Government administration, joined to the reputation of the Government, in having successfully assisted in putting Canadian cheese and butter on the British markets in the best way, would vanquish active hostility from the retail butchers in Great Britain without any commercial struggle involving loss.

The Government would be in a position to select the pick of the cattle at Montreal, and would thus prevent any sentiment from being foisted upon the consumers in Great Britain that might lead them to regard the dressed meat trade from Canada as a "Cheap John" affair for the disposal only of beef from inferior cattle which were not fat enough to be shipped alive.

Cattle Jaded and Beef Injured.

When Canadian cattle are shipped alive by railway and afterwards by steamship they arrive in Great Britain in a jaded condition. They look their worst, and are about at their worst for killing for beef. Both of these conditions enable the British cattle buyers to beat down the prices. The beef from Canadian cattle, when shipped and handled in that way, does not reach the consumers in such a condition as to secure the reputation for good quality which it would obtain if the consumers were able to purchase the beef at its best from such cattle as are fed in Canada.

Now, no Alternative Market in Great Britain.

Formerly, when Canadian cattle could be sent to the interior of Great Britain they could be grazed and fed on grass or succulent fodders on English and Scotch farms for a few weeks. They gained tremendously in weight, and recovered quickly in quality. That alternative outlet for Canadian cattle caused relatively higher prices to be obtained, and also gave a steadiness to the price and demand which is now wanting.

Canadian shippers with their cattle at the port where they have been landed, in the United Kingdom, have no alternative but to sell at once, or within two weeks, at whatever price they can get. If they hold over for even a fortnight the cost of

feeding demands a large outlay; and the arrival of fresh shipments by the next steamers gives the buyers an additional argument which they use most effectively in further depressing the market and lowering the prices.

Direct Trade Connection Prevented.

As a matter of fact, a considerable quantity of the beef from Canadian fed cattle does not reach the British consumers under the name of Canadian beef. Misrepresentations which go on in that practice, work directly and continuously to the injury of the Canadian farmers, and prevent Canadians from establishing that trade connection between the consumers and the producers of Canadian goods under their own name, which alone can insure a satisfactory continuity of the demand.

Profits of Middlemen Too Large.

The buyers of cattle at the landing ports, and the retail butchers in Great Britain, get more than their proper share of the ultimate price which is paid by the consumers for the beef from Canadian cattle. The enormous profits which they exact, and which mainly come out of the pockets of the Canadian farmers, are little short of extortions.

Danger From Restrictions.

With the restrictions on the importation of live cattle imposed by the Imperial Government, such a condition of affairs might readily be brought about as would cause irretrievable disaster to the live stock interests of Canada. An alternative means of reaching the consumers with Canadian beef is the only means whereby a safe and elastic outlet can be provided for the increasingly larger numbers of cattle which are being reared and fattened in Canada.

Small Sized Cattle.

At the present time there is no opening for the exportation of small sized cattle such as are most commonly grown and fattened in the Province of Quebec.

No Cold Storage Service Until 1895.

Dressed beef has not been shipped from Canada hitherto because cold storage service, in warehouses in Montreal and on board ocean steamers, was not provided of an adequate sort for any of our perishable food products until it was taken up by the Government last year. A greater measure of success than has attended the cold storage service for the putting of Canadian creamery butter on the British markets can attend the shipments of dressed meats and other perishable food products to Great Britain.

Objections of Sentiment Prevented by Government Action.

The question of sentiment on the part of the British consumers is a powerful and far reaching factor in determining the way they buy and the prices they pay

for the articles of food which they consume. The name "frozen beef," and the stories set going about the abominations of slaughter houses, etc., are powerful to keep the best class of customers from buying, or from letting it be known that they do buy, anything but the "best English" and "best Scotch" beef.

If beef as good and as cheap as the best English and best Scotch could be obtained from shops or dépôts in the United Kingdom, under the name of "Canadian," and under the supervision of the Canadian Government for one year, as an object lesson, the best class of buyers and consumers in each of the large cities where these depots were placed would be attracted to give preference to the Canadian article. The beef could be sold at prices much lower than the current prices for the best quality of English and Scotch beef, and an ever growing demand would be created at such prices as would leave it possible for Canadian farmers to obtain relatively higher prices than they have been getting during the past few years.

Meats Chilled only Arrive in Prime Condition.

The prime object should be to put Canadian beef and other meats within the reach of the British consumers in their best condition under their own name, and in such a way as to induce the best class of purchasers to be our permanent customers. In shipments of beef and other meats from Canada, it is necessary that they should be chilled only. The distance and time required for shipment are not more than sufficient to permit the beef and other meats to be properly cured, when they would reach the stores or retail dépôts in the United Kingdom. The meats should be designated "Canadian Beef," "Canadian Mutton," "Canadian Lamb," "Canadian Poultry," etc. When the quality and reputation of Canadian meats under their own name are recognized and established, Canadian shippers could continue in competition with the producers and sellers of meats from all other countries upon an equal footing, and with a fair chance of securing the best customers, particularly if they could offer better value in better meats at even the same price per pound.

Recommends Purchase of 500 Cattle Per Week.

To permit this to be done, and as an object lesson to the producers and shippers of animals and meats from Canada, I have the honour to recommend that provision be made for the purchase of about 500 head of cattle per week, at the port of Montreal, during the shipping season, and that dressed beef from such cattle be sent as "Canadian Beef" to the United Kingdom, and distributed through retail dépôts in Bristol, Birmingham, Glasgow, Liverpool, London, Manchester and other cities, in such a way as to secure a recognition of its good qualities.

Preparation of Beef at Montreal.

Arrangements can be made for the slaughter of cattle at abattoirs in Montreal. The beef should be covered by distinctively Canadian wrappers of attractive appearance. It should be chilled in cold storage chambers. It should be carried in cold

storage compartments, on board the ocean steamers. It should be taken into cold storage chambers at the port of landing, and from thence distributed to and through the retail dépôts in the cities mentioned.

Agreements with Merchants.

The distribution, through the retail shops or dépôts in cities of the United Kingdom, could probably be effected best by making agreements with dealers of good standing, of sufficient means and business ability, to supply them with a certain quantity of beef per week. This would avoid the need of engaging a large number of men as salaried officials.

Retail Prices Fixed.

The prices at which the different cuts of beef should be sold to the consumers should be fixed by the Commissioner designated to take charge of the work, on behalf of the Canadian Government. These should be advertised widely and effectively in the several cities, as well as on bulletin boards in the shops.

Prices to the Dealers Determined by Retail Prices.

The beef should be supplied to the dealers in the several cities, with whom agreements were made, at such a price per pound for the whole carcase as would be agreed upon from time to time. That price would be based upon and varied according as the rates were varied at which the dealers were authorized to sell the different cuts of beef.

The profits of these dealers would arise from the margin between the amounts realized from the retail sales, at the prices which they were authorized and which they agreed to charge for the different cuts, and the amount which they paid for the beef taken by them from the Government weekly.

Payments by Dealers.

The dealers in the several cities, with whom agreements were made, should be required to pay for the beef weekly, and their payments might take the form of checks or deposits to the credit of the Receiver-General.

No Definite Number Need be Purchased.

It should not be made compulsory on the Commissioner in charge to purchase 500, or any other number of cattle, every week. The number to be purchased and killed should be left to be regulated from time to time by the activity of the demand and the success of the distribution through the retail dépôts in Great Britain.

Maximum of Estimated Net Cost to Government.

The actual net cost to the Government for the management of the whole business would depend upon the prices which may prevail in Canada for cattle during the season of 1896. If prices in Canada be relatively low, compared with former years

(which would be most unfortunate), the whole business could probably be managed without any cost, loss or charge to the Government, and show a profit; but in case the prices of Canadian cattle in Canada should be relatively higher in 1896 than in former years (which would be a good thing for the country), a sum up to $30,000 might be required to meet the expenses which are inseparable from the inauguration of the business at the abattoirs, on board the steamships, at the central dépôt at the port of landing, and at the retail dépôts or shops for the distribution of beef and other meats in the United Kingdom.

One Year only Required.

The business need not be managed by the Government for longer than one year, after which it would be doubtless carried on by private enterprise.

Appointment of Inspectors of Meats.

The beef shipped under the Government control in 1896 should be inspected and graded. The dealers in the several cities who traffic in beef, would become familiar with the quality and names of the different grades, if more than one grade should be established. After the first year, the Government might appoint "Inspectors of meats for export" at abattoirs at Montreal, Quebec, Toronto, Winnipeg, Calgary and any other place where the business required it. The dealers in the several cities of the United Kingdom would then be in a position to purchase by cable or otherwise a given number of carcases of beef, whose quality would be certified by the official inspectors of the Government. This plan would avoid the need for sending the beef or meats forward on consignment and would open up a good demand on a safe basis, from the time when the Government gave up the charge of making the shipments.

Other Perishable Food Products.

A beginning could be made in a trade for the shipment of "Chilled Canadian mutton," "Chilled Canadian lamb," "Chilled Canadian poultry," fresh-laid eggs and fruits, through the same agencies.

From the trade in dressed meats would grow up in Canada associated industries, such as the rendering of tallow, the tanning of hides, the making of glue and others.

Cold Storage Required for Cheese, Obtained with Little Expense in Connection with Storage for Meats.

The cheese trade of Canada has reached proportions as large as seem safe, excepting for the natural growth, which may keep pace with the annual growth of demand from increase of consumers. During the months of July, August and September, a large quantity of cheese shipped from Canada does not arrive at the ports of Great Britain in the best condition, owing to the fact that it has been overheated in the railway cars, or on board the steamships. There is an urgent need

for cold storage on board the steamships, for the protection of our cheese trade. It now meets much keener competition in the British markets than it did a few years ago, and to hold our own, advantage must be taken of every economical agency for the preservation of the good quality of the product during transportation. Cold storage for cheese could be provided on board the steamships with hardly any expense to the Government, in conjunction with the cold storage accommodation for the carriage of dressed meats.

Extension of Butter and Beef Go well Together.

The making of butter in creameries during the winter can be increased very greatly, and the feeding of cattle and swine for beef and pork uses, can be joined to winter dairying with very great benefit to the farmers. An extension of these two branches of agriculture would go well together.

Export Demand for the Whole Year.

After the close of navigation at the port of Montreal, the exports of cattle from Canada each year have practically ceased. That has resulted in a great lowering of the prices of fat cattle until the opening of navigation in the spring of the following year. A good export demand for Canadian dressed beef might be maintained during the whole year after a trade is once opened up.

Benefit to the Maritime Provinces.

In former years, the want of an export outlet for cattle and beef has led to the shipment of surplus beef from the western provinces to the maritime provinces. That has prevented the farmers in those localities from selling their fattened cattle to advantage. A steady and profitable demand, such as would be created by the inauguration of a dressed beef trade from Canada, would take all surplus fattened cattle in the western provinces and Quebec for the United Kingdom, and leave the markets of the maritime provinces comparatively bare and available to the farmers who live near them.

Plan Proposed to Provide Lasting Advantages.

The object of this proposal for managing the retail part is to avoid a very serious objection, and to achieve a business arrangement which would be permanent in its benefits. It would be almost impossible to administer a Government business in Great Britain, if the men who managed the retail shops were on salaries, and collected the money and paid it into the credit of the Government. That would be open to very grave abuses, and would be almost impossible to manage well. I would not recommend the Government to put a finger into a pie like that. But if dealers, with whom agreements are made, take the meat wholesale and collect the money for it, there would be no risk of loss, of pilfering, or of mismanagement. Each dealer would pay for the meat week by week, and if the bills were not paid

weekly, he would not get any more meat. This would simplify the system, and make it safe. The other object to be gained, and the more important one, would be this. If the Government engaged men on salaries, when the Government dropped out of the business the business would drop to pieces, so far as getting into direct touch and connection with the consumers was concerned. We should not have laid a foundation upon which a superstructure of permanent trading could be built afterwards. These dealer-salesmen, with whom agreements are to be made, should be men of good repute, ability and means, who know their business. The Government, after the first year, would have to employ an inspector only in Montreal to grade the beef, so that any shipper could have his cattle slaughtered in Montreal at his own charges, under Government inspection. He could then offer to sell 100 or any number of carcases on that inspection, grade No. 1, 2, or 3, as the quality might be. I anticipate that those dealers, who had begun to sell on behalf of the Government in England, would go on buying beef direct from Canada, as others now buy cheese and butter. That is how the proposal, I think, would achieve these two objects.

The plan is to be submitted to Parliament. If it is accepted and acted upon, arrangements will be made for the sale of Canadian chilled meats, under their own name, in dépôts in many of the large cities in Great Britain. The plan will provide for the Government opening up the business for one year only, and the commercial agencies in Great Britain will be so chosen and managed that men of capital and knowledge of the business there will continue the trade in dressed meats from Canada afterwards on their own account. After the first year it will be necessary for the Government to appoint inspectors of meats, in order that the meats at any of the abattoirs in Canada for export may be graded according to the standards established during the current year under the arrangements made by the Government. That will enable the buyers in Great Britain to purchase Canadian meats of certain recognized standards of quality, as they now purchase Canadian cheese and butter. That will stop the undesirable practice of consigning our perishable food products, which at present is the case with cattle and sheep. While this is a new act on the part of the Canadian Government, the manner according to which the business will be administered is not new in Governmental affairs. In 1886 cheese and butter were purchased by the Government of the Province of Ontario and sold in small packages at the Colonial and Indian Exhibition to advertise the excellence of Canadian cheese and butter there. Work of a somewhat similar kind has been undertaken by the Dominion Government in establishing dairy stations and managing the financial part of the business for the farmers until the channels were opened up and the farmers had acquired sufficient knowledge to carry on the business successfully themselves. Similar work was done by the Imperial Government of Great Britain in India to establish and develop the tea trade there, which is now of great importance to the prosperity of the empire. In that case the Imperial Government purchased the small farms, procured the plants, hired the men who grew the tea, and

marketed the same, until they had demonstrated the feasibility and profitableness of that branch of culture. With the opening up of a trade in dressed meats, such as beef, mutton, pork and poultry, something could be done in the way of improving the marketing facilities for collecting and marketing Canadian eggs and fruits. Doubtless, with this major industry would grow up such minor and associated industries as the rendering of tallow, the tanning of hides, and the making of glue and fertilizers. These seem to be the means and ways whereby and wherein at the present time it is most desirable that the Government should lend its powerful assistance for the development of the resources of the Province of Quebec in dairying. Other provinces would reap an equal share of benefit from such action.

This is a scheme that will help the people in this Province to realize more out of their natural resources. It will help this Province in a particular way; and by furnishing a market for the products of Quebec it will help all the other provinces. The others will not be helped at your expense, nor you at theirs; but your good example will incite them to emulate you. Glory in each other's prosperity. Go on, and say: "We are glad we are doing well; we are still more glad we are a part of a country that is also doing well—doing even better in some parts and in some respects than we ourselves have, as yet, succeeded in doing." Thus, we shall make our land worthy of ourselves, and ourselves worthy of its bountiful resources.

ADDRESS OF A. A. AYER, ESQ.

Mr. Chairman and Gentlemen,—If I can get you down, from the high position to which you have been raised while listening to the eloquent Prof. Robertson, to plain, common standing ground, I will try to say a few words upon the subject allotted to me in your programme.

Price and Quantity.

It seems to me that we are living in an age when everything points to SIZE and VALUE. The lover of nature looks to immense mountains or glories in little flowers. The women, they say, are fond of elephants and diamonds. And the man who goes to the county show, looks for the biggest animal, or the finest quarter pound of butter. So it strikes me that the leading idea of this Convention is quantity and price, or size and value. If, after all the good advice you have received, you do not know how to get quantity, it will be in vain for me to try to inform you. I wonder if it ever occurred to you how much TIME is spent in running about getting a PRICE for goods. How are we to insure SUCCESS in getting great quantities and a good price? I don't know of any royal road to SUCCESS; I have never heard of any. The only road leading that way is called "common sense" and "hard work." Most people think they have sense, and a good many think they do a little hard work.

How shall we proceed to apply this work so as to get a reasonable amount of success out of it? Some say agricultural pursuits don't pay, and the best thing for young men to do is to go to the cities and engage in business. I suppose you

know and you ought to teach your sons, that 99 per cent. of the men engaged in business fail. . About one in a thousand succeeds in gold mining, and one in a hundred, succeeds in business. Farming is certainly more successful than any other business. The Hon. Mr. Beaubien has referred to the English proverb of "Let well alone." I believe there is a French saying or proverb of "Laissez faire." These two short words explain many things, and translated into English might read, "let it take care of itself," "let it go itself," meaning, I take it, "don't put too much trouble into it." There are lots of people who are doing that; there are lots of business men, 95 per cent. out of the 100 that fail, who "Laissent faire." The business takes care of itself and does not take care of them. There are farmers, and I regret it, who let the calves go, and let the pigs go, and let the sows take care of themselves, and the milk take care of itself; and, of course, it does not take very good care of itself.

I wonder, by the way, now that there is snow on the ground,—I wonder how many farmers had their sleighs all ready? I wonder how many farmers have their wood ready cut in the bush; how many have their waggons all repaired and in first class order; how many have their tools and implements painted up and put in a dry place for next spring, or are you waiting ("Laissez faire") until the time comes to use them before repairing them?

There is another proverb, perhaps some "Laissez faire" farmer originated it: "You can think of but one thing at a time." Is that true? I suppose you can't think of two things in the one-thousandth part of a second; but you can think of two things in one second, and you can think of many things in ten seconds. You send your girls and boys to school, and they learn reading, spelling, arithmetic, grammar, geography, and writing, and they study all in one day. These are practical lessons for the business of life, that is, they are learning to do more than one thing at a time. The farmer that cannot think of cows, and calves, pigs and horses, tools, and every detail, at one time, cannot carry on his farm successfully. If I did not know every lot of butter, or if my partner did not know every lot of cheese; if we did not examine it and find out to which customer each lot of goods was suited, or what market it could best be sent to, we simply could not do our trade with any profit.

I understand some people fancy it would be a great blessing if these miserable butter and cheese merchants were swept out of existence. They could go over to England with their products themselves. Why not try it? Other farmers have tried it and failed, perhaps you could do better. How would you proceed? You would send a man over to sell the goods, and would you know where to place them? Do you know where to send your representative? Shall you send him to London, or to Southampton or Plymouth, or to Bristol or Cardiff; to Liverpool or Birmingham; to Hull, Dundee or Edinburgh or Glasgow? Could one man do the work of hundreds of men? Each place wants its own class of goods. He must know where to place the soft cheese, where to place the firm cheese, where

to place the colored cheese, where to place the little and where to place the large cheese, and where to send this flavor and that flavor. Do you feel so sure that you know all about it? Have you spent all your life at it? Do you think it is possible that there is a man with such an extensive experience that he could see to all these things and place every cheese just where it ought to go? I have spent 30 years at it, and I don't know how to do it perfectly myself, and if any one here thinks he can do it, he should try it.

No, No, Gentlemen, regular steady hard work for years is the only royal road to success whether on the farm or in the city. Give me the man with enthusiasm for his work. The enthusiastic farmer, one who can think of more than one thing at a time, he is the man who can make a success at farming. You can make a success of farming and of any other business if you attend to it, but not if you "Laissez faire."

Why do I make these statements? Because you have been listening to many theories. I want to set you thinking so you will put these ideas into practice. Did you ever see a boy who was fond of work? You don't expect a boy to like work, but if a man lives till he is 50 and does not like to work, something is wrong either with the man himself or with his father before him.

I saw in a paper the other day that the farmers out West had joined the 8 hour movement. They thought eight hours was long enough during harvesting, that is, eight hours before dinner and eight hours after dinner. Now Gentlemen, I don't know of a business that does not require at special times eight hours before dinner and eight hours after, and sometimes more than that. I have worked sixteen hours a day many times, and I believe that I have averaged as many hours a day as any farmer. Do you think that the Minister of Agriculture, who spoke so enthusiastically to-night, could make such a success as he has made of his department, if he had not put in a great many hours of hard work every day.

Having said this much about work and application, I should like to speak briefly about refrigerators. You have heard about them and seen them, and you know there are some good ones and a good many poor ones. There are ice houses in which the wood is damp and the floor dirty, not fit to be called ice houses at all, and from the time that the butter goes in until it comes out, it is growing worse every day. I don't know of anything that gives more bad flavors than a damp, mouldy ice house. Instead of the temperature being below thirty-two, I have seen them at fifty or sixty. This is not as good as an old fashioned cellar. Either freeze your butter or don't make any pretences.

In regard to tubs, I have been advocating a 70 lb. Canadian tub for exporting. I am not wedded to opinions I expressed ten years ago, nor to those I expressed one year ago. The present call is for the 56 lb. square box.

I simply advise the Creameries, that may be procuring tubs for next year, to wait until there are more developments, say, for the next month or two. Apparently, boxes are to be the packages.

Whatever kind of packages you use, parchment lining is absolutely necessary for the English market, and do not neglect to steam the tub, and put the lining on wet to avoid mould.

You know what success attended the exporting of Butter this year, and how much of this was due to the bonus offered by the Government of this Province. I am in favor of this bonus, and I hope, this year, it will take the form of being applied to the June and July Butter alone, as if the make of these two months are exported from the country, the balance of the season can take care of itself.

Local trade in Montreal at present is healthy, because we have not a large quantity of early Butter on hand as compared with a year ago.

The question is often asked, how much butter does Canada consume? Last year's statistics shows that the City of Montreal alone consumed 3,000 packages per week, averaging, say, 50 lbs. each. On the first May last year it was found that there was a stock of some 5,000 packages too much; the result was that butter was selling at a very low price. If instead of having 5,000 packages too many, we had had say 7,500 too few, I have no doubt that butter would have been worth 5 cents per lb. more than it was. It is difficult to say whether we have too much butter for our local consumption in Canada to-day or not, but I will venture to predict that if 5,000 tubs more could be shipped out of the country, the balance, or, say, 50,000 tubs required for the City of Montreal alone, would be increased in value by at least $50,000. I have only instanced Montreal, but you will see by this what an important item our home consumption is. I think it larger than some people suppose.

I should like to digress and speak on one or two other points. There has been some mention made of the carting of milk. As a rule, it is the practice in this Province for each farmer to draw his own milk to the factory. Have you ever calculated what it costs to draw milk? If on five miles of road there are 12 farmers, and these farmers average say 20 cows each, under the present system you are consuming the time of one man for at least 24 hours to draw this milk, whereas, one man could do the whole work in less than six hours. Am I astray when I estimate that cheese factories will average an expenditure of 150 hours per day in drawing milk? Is this economy? I consider it is a gross waste of labor; there ought to be some work on the farm worth more than can be realised by such waste of time in drawing milk. I estimate that each farmer could have his milk drawn at a cost of say 15 cents a day, or 1 cent per cow per day. If any farmer is willing to do the work himself for 15 cents, there must be something wrong with the farmer.

An incalculable injury is being done to the trade by small factories. I advocate large factories, because they can afford to pay a maker well, and do the work better than small ones, and because it is economy to the farmer, and because the cheeses are worth more. A small factory makes a few inferior cheeses which do not turn out well; the English become disgusted and the country suffers.

Another point, do not make hay cheese. You only sell a few thousand boxes,

while you only run down the market upon yourselves;—it is far better to turn the milk into butter. In these days, every five or ten cheese factories should have a creamery convenient for this purpose. Competition is keen,—butter and cheese are coming from the ends of the earth, therefore you must not crowd the market with cheese at the wrong season.

There is room for improvement in this Province in the appearance of the cheese. Many of the factories have old fashioned hoops that ought to be thrown away; new, tall hoops, 14½ inches in diameter, are needful to produce cheese with handsome edges and of the right style.

In cheese as in butter I expect that there will be less variation in prices in the future than in the past, and that owing to the change in the science of manufacture, as well as to the incoming of refrigerators for the keeping of both butter and cheese, the September product will not bring very much more money than that made in June. I do not see any way for the farmer to make money out of butter and cheese in the present day except to keep better cows, to feed them better, to produce more milk, to make more cheese, and to keep on travelling by that only royal road to success called "Common Sense" and "Hard Work."

ADDRESS OF PROF. SHUTT.

Mr. Chairman and Gentlemen,—My colleague, the Dominion Commissioner, has referred to man at times as a very voracious animal, but there are exceptions and you have in me a living example of a very merciful one. I am not going to address you at great length. I think you have been here long enough this evening, and consequently acting on the suggestion of your Chairman, I shall not begin the address allotted to me by your Secretary. I may be permitted, however, while on my feet, for a few moments to say, as a member of the staff of the Experimental Farm, that I am very glad to avail myself of the opportunity of meeting those that are co-workers with us in agriculture. It is not always possible for us to attend meetings, but whenever it is, I take very much pleasure in speaking with and meeting with those who are working towards the same end, although probably on somewhat different roads. We have the same object in view: the greater success of agriculture. Looking back, for the past seven or eight years of my work under the Government auspices, I may say that I feel that I cannot point to any work which the Government is doing of greater importance, or of greater value to agriculture generally, than the dissemination of knowledge by means of your associations and by your conventions. I think it is good for all of us to be here, to do as we are doing to-day; good for us and good for you. It gives us the opportunity of learning the needs of the country, and it gives you an opportunity of getting information, the results of experiments upon our Experimental Farms.

I can confirm that which has been said with regard to the resources of this Province, and I am going to speak to-morrow about how you can protect

some of these resources, and more especially the resource of fertility in your soil. I may say now, from what I can see and learn, and I do not say it in a flattering way, nor to win your appreciation, that I believe you have in the Eastern Townships, and in many other parts of Quebec, conditions specially favorable to the successful conducting and carrying out of dairying. We know that it requires favorable soil and climate to carry on financially successful farming, and you must have them here. Here, you have an abundance of the purest water, here, you have cool nights in the summer season, here, you can grow luxuriant crops of fodder.

A careful observer will note that certain parts of the Dominion are particularly suitable for special work: thus, we have fruit-growing districts, grain-growing districts, and districts specially suitable for dairying. Here, as I have said, you have teed, conditions of soil and climate suited specially to this work of dairying. Here you are not liable to seasons of extreme cold, heat or drought. You can raise succulent fodder at a very reasonable cost. What we want to-day, perhaps more than anything else, is knowledge, and we have come to give you information and words of advice that you can make use of in dairying. We want to know more about our work. It is well recognised now in every business that only those can succeed who have, as it were, apprenticed themselves and have spent several years of hard labor, labor of brain and muscle to acquire efficiency in their business. If we can read the signs of the times, we shall see that agriculture as a Science is progressing everywhere; we are following in the footsteps of those in the older countries when we acquire definite information and when we apply better methods in our work. The would-be successful farmer no longer turns up his nose at scientific knowledge such as chemistry and botany furnishes. We realise, I say, that there is something to learn in these sciences that we can apply to our work and obtain a profit from every day. I trust to have an opportunity of further speaking to you on this subject; the hour is now too late to trespass at any greater length upon your kindness and attention.

Session of Thursday, December 5th, A.M.

Mr. Wm. Rhaven:—I wish to submit to the Professors who are present, a question on the subject of water. M. Taché, in his report, gave one opinion, about sulphurous and gassy waters, with which M. Bourbeau did not agree. In butter-making the water for washing must be perfectly pure. Some waters are assimilable, others are not. Distilled water is indubitably assimilable; rain water, the water of rivers and lakes are those best suited to the purposes of the dairy, especially for washing the butter; but stagnant water, well water and that from springs, are all unsuitable for that purpose. There are also sulphurous and gaseous waters, generally derived from springs.

Cows, too, must have clean water to drink, about which, she, if she gets the chance, is mighty particular. Then, when on pasture, a cow will prefer drinking

from a pool to drinking from a brook, and the pond water must be pure or else the cow would not select it; but it is quite certain that pond water after stagnating some time and becoming full of microbes, becomes corrupted and turns pure again, and perfectly assimilable. A cow never drinks from a stream, unless she is positively obliged to do so *faute de mieux.*

The non-assimilable waters are calcareous water, fresh from the spring. Salt water, lime water, are mineral waters; sulphurous or gaseous waters may be used if it is wanted to dilute the milk (*mouiller le lait*) or for the production of milk; but it is best to stick to the assimilable waters. If non-assimilable water be added to the milk, your eyes will show you at once that there is water in the milk. I think it would be as well to have the opinion of the Professors as to the employment of the different kinds of water in butter-making.

PROF. SHUTT:—With regard to the question of water, I might say at the outset, that the water as it falls from the clouds is the purest water found in nature, provided it has been collected in clean vessels and where the atmosphere is free from smoke or other contaminating matter, as in the country. Absolutely pure water is unknown in nature. Rain water falling in the countey, is practically pure. Such water falling on the ground would at first be pure, containing no contamination, but allowing it lie stagnant in an open place, as in a pond, exposed to the weather and inflow of drainage would not in my opinion tend to improve it. If this water were in such a place that it could receive the drainage of the fields, of the mixen of the stables, it would be contaminated. Anything coming into the water of a foreign character would tend to deteriorate or impair the quality of the water. I confess I have not heard of assimilable and non-assimilable waters, as spoken of by Mr. Rhaven, nor do I think it all possible to detect their presence when added to milk. Water may be pure or contaminated with polluting matter, but in neither cases should it be used to add to milk.

That does not touch the question of the purification that takes place when water perculates through the earth. The earth has a great purifying power in that way. But water running in a trough on the surface of the soil is subject rather to pollution than to purification.

MR. BARNARD:—The question put by Mr. Rhaven refers to the water that accumulates in the fields and pastures. The difficulty would be that it was a surface water which had gone over the fields and had been more or less contaminated, and afterwards is kept three or four weeks until the next rain comes, so long as the hole in the ground can be large enough to keep up the supply from rain to rain. During this length of time the water receives contamination, and can this contamination be worked out by fermentation? I understand this explanation and the water being pure to agree perfectly. Both say it was perfectly pure after it came from above. But, after coming from the field and draining into the hole, it has been more or less damaged and the fermentation ensues on account of the heat in the summer, and the insects working into it, and the animals with their feet getting

into the hole contaminate the water. The question is if after certain time there is a cessation of this trouble and the water becomes good again.

J. DE L. TACHE:—Referring to my previous remarks concerning the water requisite for dairy purposes, I would rectify one thing which might mislead and may give a meaning which my words did not intend to convey.

I said yesterday that some authorities in treating of the matter say that all water which contains a lot of oxygen in solution is dangerous for washing butter. And if there can be any comparison between well water and spring water the preference should be given to well water, having less oxygen and the spring water more. That is a spring in the open air. But if spring water is taken from the spring and taken to the factory in a pipe, I suppose it would not contain much oxygen. My authority for stating this is one of the best modern authorities, Oosta Grotenfeldt, in his course on dairying. Grotenfeldt is one of the most practical and scientific men who has ever handled the subject. He says:—"Duclos has shown by by numerous experiments that the butter must be protected from the influence of the air (oxygen) and light. Precautions in this direction should, he says, be taken even in the churn, *i.e.*—by washing the butter with water poor in oxygen. Well water or spring water should be used for washing and not lake or rain water." Duclos considers that the latter is injurious both on account of the large contents of oxygen as well as the probable presence of numerous micro-organisms.

That is about oxygen. And there is another question, and that agrees perfectly with what Professor Shutt says: that the earth has a purifying effect which makes the water from the deepest well more fit for use. This fact is corroborated by the observations of both inspectors, who have mentioned that deep water is free from contamination, even when derived from water received from polluted places. Then, the water ought to come from a deep well; the deeper the well the better the water, so far as being contaminated with germs is concerned.

PROF. SHUTT:—Another word on this matter. I like to hear this matter discussed. because it has long been one of great interest to me. I think that Mr. Taché is quite right in what he says about the action of oxygen on butter, but I would further state that a far greater danger lies in the use of water polluted with organic filth and containing hosts of those micro-organisms, known as bacteria. I know something of the quality of water used on our farms and dairies, and I cannot, as a rule, speak in high terms of it. The question we have to discuss in this connection is the pollution due to drainage matter from the barn yards or the fields, pollution that is preventable. We have to see that the water is free from organic matter of animal origin. By all means should your water be always free from organic drainage, because that water has in it a great deal to feed the germs that cause fermentation and create bad flavors in milk, butter and cheese. Many diseases also are caused by these microscopic plants, microbes or bacteria, and these disease germs have their development in such water containing the excrementitious matter of an animal. I would therefore impress on you the necessity of having your water supply as sufficient

distance from any possible contamination of that character. I don't wish to recommend the method of keeping the water in open places in the fields. You are opening the way to contamination by so doing. In the majority of instances it would be well to have a deep spring. You will then have your water cold, and further, it will be pure if it is situated at a sufficient distance from the barn yards or other places where it can be contaminated.

M. TACHE:—I referred to the making of fine butter. I said that precautions should be taken to prevent the entrance of the germs into the factory. I mentioned that drainage should be provided against, and that there should be precautions against all chances of contamination.

PROF. ROBERTSON:—I may add one word. In the preservation of butter it is not enough to keep it cold. Light and air have some action upon both the color and the flavour. The oxygen in the water would tend to make butter more yellow and of a little higher flavour. This action of oxygen cannot be escaped in the working of the butter on the table afterwards. If the butter be worked an hour longer than usual, thereby assuming a higher flavour, it will not keep so long. It is clear that it is not enough to keep butter cool; it must be kept in a dark place and where the air does not touch it. That is the value of keeping it covered with butter paper.

M. AUGE:—I have a couple of questions to ask. You know there is a good deal of opposition in some places (I suppose it must be through ignorance) to the paying of milk by the Babcock test. In one case one man's milk was found to be richer by that test in June and July than it was in October, and I would ask the gentlemen who have studied it to explain if this can occur without the milk being tampered with? Now, some farmers in the locality had the idea he had tampered with his milk. His milk from the same cows was richer by the Babcock test in June and July than in October, and, naturally, you know the fall milk is always the richer. That is one question and the other is this: what would be the effect of a man, living at a distance, that should take his night's milk, not stir it in the morning, but take off the cream, and then from the residue of the milk take some milk away; a certain quantity for his young pigs and calves; and replace it with water, then take the next morning's milk and mix it altogether; what effect would it have for the patrons, would he himself gain? If he did, then the patrons would lose. Could that be detected by the Babcock test?

PROF. SHUTT:—Mr. Chairman, I intended to say something on the Babcock test in the address I was asked to deliver by the Secretary on the chemistry of milk and and its products, and I don't know whether I should wade right into it now, or lead up to it. I had not anything specially prepared in form, but I intended to take up the constituents of milk, and take up the Babcock test. I have a chart here which will illustrate my remarks on that point; I will invite discussion as I proceed. I should like to leave it just for the present in that way.

MR. BARNARD:—Before the matter is disposed of I should like to hear Prof. Robertson's opinion on this matter. I hear that one of our general inspectors has

met with the same difficulty. He might explain under what circumstances, and perhaps Prof. Robertson would take up the whole subject at once.

M. ELIE BOURBEAU :—In my own factory I noticed the same thing that Mr. Augé mentioned. In June I tried the milk of a certain patron and his milk stood at 5·40 and in October his milk stood at 4·80. I thought it was due to the dryness of the season. Of course that was not the average, but it happened in one case. And I also noticed in my own factory this year that the milk, in tests repeated several times, seemed richer in June and July than in October. This comparison of 5·40 was only a single test.

PROF. ROBERTSON :—The proportion of fat in a cow's milk varies a great deal from time to time under apparently the same conditions. I have found butter fat in a cow's milk to vary as much as 1½ per cent. in two days, in the same stable, on the same feed. We have a record of about 20,000 tests in two years, and I am not so certain about a standard of butter fat in milk as before I made those tests. The climatic and food conditions this year made a better quality of milk in June and July than usual. The better feeding of cows, maintaining the flow of milk towards the fall, made less difference in the percentage of fat than existed in former years between the summer milk and fall milk. Cows used to give very much milk in July and very little in October, so the proportion of fat was greater in the fall of the year. While the percentage of fat in milk varies a great deal, taking the average of milk of a cow for a week, the quantity of fat seems to bear a fairly constant ratio to the quantity of the other solids in the milk. I take it that in the paying of the patrons according to the butter-fat test it is not fair to presume that he, who sends milk at 4·50 per cent. on Tuesday and who sends it at 4 per cent. on Friday, reaches this result by skimming his milk. If you came to that conclusion hastily you would run the risk of impeaching an honest man for dishonesty in his business. If a man takes a can of milk, takes no cream off (as mentioned by Mr. Augé), but takes skimmed milk (1) away and puts water in its place, that is dishonestly adulterating his milk. The butter-fat is all there, but the other constituents that usually go with the butter-fat have been removed by this dishonesty. So it is as dishonest to remove skim milk and put water in its place as to remove cream and put nothing in its place. The Babcock test alone would not show that, but Babcock tester and lactometer together will show it. It is well therefore to use the lactometer as a protection against being imposed on by men who desire to get something for nothing, which, on the whole, never pays. I am sure that every man acquainted with the business and who manages factories will say the same thing. I managed factories myself and we had seven hundred patrons; I had occasion several times to believe that some patrons tampered with their milk. I had reasonable evidence; I had complete proof in some cases. I never knew a man out of those 700, who, acting dishonestly, succeeded long in making a good living. I never saw a man who tampered with his milk have any measure of success. His buildings, his farm, do not look successful. He is not a good farmer; and the Lord

(1) This seems to mean : " takes milk from under the risen cream." A. K. J. F.

Almighty cannot in his wisdom give such a man the reverse of what he deserves. Honesty is the best policy for a man's pocket as well as for his conscience. And the factories who would make this risk disappear should make the test by both the Babcock and the Lactometer, and greatly assist in improving the quality of the milk.

I may say this, that the quality of milk fluctuates, very much; but if a man does not tamper with it, the fat is a fair measure of its value. If he does adulterate it, with the Babcock tester and the Lactometer you can discover the dishonesty, and make him smart for it.

MR. PATTON:—Some have made the application of the test only once a fortnight or even once a month. Would that be a fair method of testing as regards patrons when the richness is liable to change 1½ per cent. in two days? Would it be fair to patrons to pay them upon this test made only once in a fortnight?

PROF. ROBERTSON:—I have known of such a wide variation occurring, perhaps only two or three times in the 20,000 tests. A composite test, once a fortnight, does not only comprise a sample of milk taken once a fortnight, but of the milk received every morning for a fortnight. In that way you may get an average of the milk for the fortnight. That is a safe method. Our cheese and butter makers who have been hostile in the past will unite, I believe, in adopting the composite test. What is to be feared is neglect, carelessness, inaccuracy and want of skill of the butter and cheese makers. The composite test is a good one when carefully made. It needs accuracy of handling: that is why we have taken pains to teach it at the St. Hyacinthe Dairy School and to emphasise these things, lest by carelessness the makers should spoil the application of a good thing.

M. J. DE L. TACHE:—Mr. Wherry yesterday alluded to the difference of opinion which existed between yourself and Prof. Dean on the question of paying for milk by the Babcock test. Would you kindly give the gist of the discussion on that proposition?

PROF. ROBERTSON:—The gist of the discussion is just this.

MR. WHERRY:—The question was as to the difference of opinion between the Professors Dean and Van Slyke.

PROF. ROBERTSON:—In Prof. Dean's absence, I would rather not use his name except to stand for the maintenance of a principle. Professor Dean and I are good friends. He was one of my pupils when I was Professor at Guelph. He came to Guelph and passed all examinations very successfully. As a rule he showed himself to be a bright, diligent student. He took honors, and applied himself steadily after I left for Ottawa. Mr. Dean spent some time with Prof. Van Slyke in New-York, and, after his return, became my successor at Guelph, so you have an account of the relationship between ourselves personally.

The chief difficulty we had among our farmers was that we were paying for milk by weight instead of paying according to quality. Weight and quality will give you the value,—not weight alone; but weight and quality, will give you the value. We have to weigh the milk still, but we weigh it and modify that test by the quality, and so

get the true value. A certain quantity of milk will make a certain quantity of cheese. Prof. Van Slyke in his work comes to about this conclusion, that the quantity of cheese obtainable from a given quantity of milk is almost always in exact proportion to the quantity of fat contained in it. My work, not so exact as Prof. Van Slyke's (which was carried on for two years in a laboratory), — does not quite agree with it. The quantity of cheese obtainable from different milks in our work did not quite agree with the quantity of fat; the richer the milk in fat the smaller the quantity of cured cheese from every pound of fat. Therefore, Prof. Dean says, that the quantity of fat is no fair measure of the value of milk, because you don't get a uniform quantity of cheese from the same quantity of fat. The first difficulty was to shift the valuation of milk from the weight of it to the quality of it. And now Prof. Dean, and others who are standing by him, don't seem to agree with that effort, because they say, in substance:—"This method values the milk by the quantity of cheese without regard to the quality. You are no more justified in valuing cheese by the quantity without regard to the quality, than you are of valuing milk by the quantity or weight without regard to quality. You have to consider the quality of cheese made. There were about three hundred cheeses made, three years ago, in our experimental work. We found a difference in quality as well as in quantity by the 100 lbs. of different milks.....

If you take the quantity of cheese by the quality of cheese from different milks, then, the butter-fat is a fair basis for valuing milk for making cheese. It is not a measure for the quantity of cheese, but for the value of the cheese. We have merely to shift the basis of valuation to its true place, which is weight of milk modified by quality, and weight of cheese product modified by quality.

MR. PATTON:—If the buyer does not recognise this difference of value, what then? If they pay the same price regardless of this increase value, is it fair if the patrons don't receive anything for their pains?

PROF. ROBERTSON:—That is an existing injustice.

MR. PATTON:—Until this is rectified, is it fair to test butter-fat by it alone? Now, the paper of which you have been so long the editor, I understand, says it is convinced that the only true and just test must be made at the cowhouse; and that after a long experience in the United States, testing by the Babcock test, the writer was convinced that the only way a fair test could be made was by having a man appointed for that purpose to make tests, for the reason that it was impossible to find among the cheesemakers anyone capable of making a correct test. Do you think, then, in a mixed community, in small factories, it would be safe to risk our interests in such hands under the Babcock test?

PROF. ROBERTSON:—The question first put refers to a buyer who refuses to recognise the quality of the cheese. Should the patrons in that case be paid according to the quality of milk they furnish? If A and B send milk to a factory, and A's milk is better in quality, is richer in butter-fat that B's, should "A" get any more value than B per 100 lbs. of milk? In any case the milk from A, being

richer, helps to make the grade of cheese richer than it would otherwise be. The plan the buyers go on is never to bid up the price of poor cheese. It is always to bid down the finest cheese to the price they can buy common cheese at. That is their business and I don't blame them for it. It is not a bad thing for us to recognise this, while we are discussing a good many things about making butter and cheese and paying for milk according to quality, we ought—with due deference to the business capacity of these buyers—we ought to discuss from our standpoint whether we could not find better methods of selling our cheese, because, as I said last night, I do not hesitate to say that the buyers have been getting excellent value for the time, money and ability they have spent in the buying and distributing of our products. For instance, there is too large a margin between the price of cheese at the factories here and the retail selling price in England of the very finest of our cheese. We should have some means of reducing this difference and of diverting some of this money from the dealers—mainly the British ones—to the patrons.....

Then the buyers will pay up for the quality, and the patron and manufacturers share in it. Our ideal should be to give everybody full value for what he sends. The business should pay to the manufacturer and buyer a reasonable sum for services rendered. A man says, "The markets are 9 cents, that is the average" (I am not saying it is higher or lower now). If that is the average, I say that lots of cheese are worth 9½ cents, while some may be dear at 8 or 8½ cents. I should go right into that question with the salesmen, not to cut the buyers out, but to give them a chance of making more money by fair discrimination in favour of quality in buying.

Mr. Patton :—Well, then, there is an injustice, and we should try to remove that injustice and try to teach the makers how to use the Babcock test.

Prof. Robertson :—Now, with regard to the matter of not getting capable persons to make the tests. A scientific test cannot perhaps be made at the factories; but our cheese makers in Canada are being very thoroughly helped to manage all parts of the business well, because they get more help than any butter and cheese makers in the world. They have more outside help and more outside authorities they can rely upon for information. Our butter and cheese makers are competent to make good, thorough, practical tests of milk; there are men enough that are competent. So the factories themselves are to blame if they employ a man who is incompetent. It is almost as essential a part of fitness and management as keeping the floors clean. I think our makers can test to give rough, honest, business justice, without too much crudity.

If I want to find out something from Prof. Shutt's Department as to the comparative value of things, he will give me back a record: he will give me back differences in weight down to the ten thousandth part of the gramme. When I want to do the commercial work, which is more in my sphere, I don't seek the difference down to the tenth part of a gramme, but I come down to a mere pratical test. I think the same might be applied to the testing of milk, and that the maker is able to make a fair business test to do justice between man and man.

MR. PATTON :—In view of the fact that patrons watch carefully the flow of milk and the amount they carry to the factory, is it not a dangerous course to base the payment for that milk upon any machine that is left entirely to the hands of the makers? Is it not giving them an opportunity for fraud if they are dishonest? Does it not give them an opportunity in making those tests (as far as I know, I don't know whether it is true or not) to show favoritism. In the case of a man, for instance, who says, when not satisfied with the test, "I am going to send it here another week, and in the meantime, if this continues, I will see where I can get the best test, and we will settle up." A man did do that to my knowledge. Does not that place in the hands of a dishonest man a lever to comit fraud, instead of being a method of detecting fraud? Does it not place in the hands of a maker a machine that will enable him, without any wrong on the part of the patron, to practise favoritism?

PROF. ROBERTSON :—It puts him in possession of an opportunity to do his patron a wrong if he wants to, but not without some means on the part of the patron of preventing it. When out West, I looked into the mining development of the country. Now, in large mines the owners of the ore send the ore to the smelting works, and the smelter employed a chemist to assay it. The quantity of gold and silver he gets is very small in proportion to the quantity of ore, and he is paid according to the report of assayers by the certificates which he furnishes. Now, if the smelter employs a dishonest chemist, he will give certificates grading the ore lower than it is, and if he can get the man who sells the ore to accept a certificate without a check, he may buy it from the miner for one half of what it is worth. But the miner might have an independent assayer, and he can tell whether his test agrees with that shown in his certificates, and he may say, "I will not sell any more until I get fairer tests." Now, a Babcock machine, to test enough samples for the purpose of checking, could be bought for $12. A schoolmaster in any parish or township, or some other person, could get a machine, and could by going to the dairy school two days, learn how to use it. Let one or several companies employ him as an independent milk tester, so that any farmer could avail himself of the test for 25 cents. If a patron doubts whether his milk is properly tested, let him take samples of his milk, which he knows, for the tester's opinion. You could not perhaps upon that take an action in law, but you put yourself in a strong position by confronting a suspected cheesemaker with this fair test. Then, he will know that he cannot deceive, and the manufacturer would be careful lest he should make a mistake. That would be a wholesome practice. That would be better than having a Government official. It is better not to have too many officials; they are difficult to manage. You had better try this in a few places, and then, afterwards, you might apply it on a larger scale.

MR. WHERRY :—I might repeat the remark I made the other day, which was this: that in some cases, and I think it was brought up, the inspectors go round testing the milk for the purpose of having it paid for by the Babcock test. Well, I look at the matter in this way: Ontario milk is not so rich as Quebec milk, and still they were

getting more for their cheese, although Quebec milk was the richer. And we should have to spend our time as inspectors, all our time, in going round and doing nothing but testing the milk with a view to the dividends. I remarked that we should lessen our usefulness for something more important, such as looking after the quality of the milk, in regard to flavor and cleanliness, and instructing the makers in the principles of making. That was one of the points, and there being a dispute about the paying for the milk by the Babcock between some of our men, I did not like to say it was right before it was a settled thing, and that is what I want to know. What was the use of so much discussion about the butter fat in milk when it was not sold by the butter fat value, but under the trier of the buyer. And those were the points I wanted to get at clearly. If they are correct, I want to be in a position to answer patrons and cheese-makers when they ask questions as to their correctness. I have been a little puzzled what to do, sometimes.

PROF. ROBERTSON:—I don't think it is any part of the inspector's duty to take up much of his time in testing the quality of the milk at the factory as to its percentage of fat. If the milk is tested, as it should be, by the composite test, the only man to test it reliably is the man taking daily samples to make his composite samples. You divide his responsibility. So I think the matter of testing should lie entirely in the hands of the maker at the factory. Now, the inspectors are trying to carry on their work of trying to improve the quality of the milk and of the cheese, and looking after those things specially.

In regard to the buyers' valuation, let me emphasise what I want to make clear. You must not run away with the notion that, because the buyers have a way of valuing things according to their own judgment, the cheese buyers here are infallible in their conclusions. Apart from that, I want to make this clear; it is a serious matter that, while the quantity of fat in milk is a means of measuring its value for cheese making, it is not the only means. Any man can take rich milk and make poor cheese, and the really good cheesemaker can take poor milk and make good cheese. But, if the men be equally competent in both cases, they will make better cheese out of milk rich in fat than out of poor milk. Let me say, with all kindliness of judgment, that the lower price the salesmen of the province of Quebec get for their cheese than the Ontario salesmen is, not because the rich milk could not and should not be made into finer cheese, but because your cheese makers don't yet know how to do it.

MR. PATTON:—That is the point: they don't know how to do it.

PROF. ROBERTSON:—I will go back five or six years; then, the cheese in the Province of Quebec was sold for a cent a pound less than Ontario cheese; and at that time the Quebec milk was quite as much richer than Ontario milk as it is richer than the Ontario milk to-day. You are creeping up close in price. The people of Ontario have said that I was flattering the Quebec people, because I said the people of this Province could and would soon make finer cheese than they. If you keep on improving the quality, your cheese will fetch better prices.

Let me say this one thing more on that point. Systematic supervision of the factories, so that all the makers turn out cheese of uniformly fine appearance, will give your cheese more value. In some of the official work of our Department we have been doing that, in new sections where the people had no experience. Thus we had the same weight of cheese per box from every factory from entirely new districts, and they took the top prices of the very best cheese. It is getting these little things better done that will improve the prices.

I believe you have the best quality of milk, and I believe you will have the highest value for it; but don't stop before you get there. You can get there, and there is something wrong in yourselves, if you do not get there. Your men are gaining in skill every year and will get better every year. The St. Hyacinthe School and the inspectors are aiding you, and you are getting there slowly and quietly. Give full value to your cheese maker, and insist on the cheese buyer giving full value for your cheese.

MR. HODGE:—With regard to the matter of good cheese, there is one question I would refer to. Some time ago we received from a factory, that used to send us first class cheese, a lot of cheese. When the cheese came to the store, as far as appearance was concerned, it was as bright and as handsome and as well made as any cheese coming from any part of Ontario. But last year we discovered very suddenly quite a change in the flavor of the cheese. When it came in, I wrote to the maker, stating that I was sorry to find that his cheese was off in flavor and had a peculiar flavor that I could not describe, and I asked him to explain it. He came to Montreal at once and saw the cheese. He said he didn't bore any of the cheese: he thought everything was right as it had been before. We looked at the cheese, and this man stood upon the floor of my warehouse with tears in his eyes. I felt sorry for him, and I asked him if he could give a reason for it; and he said "No", he could not give any reason. He said: "I don't know the reason; I can't give you any reason." But, a week afterwards, I was driving through the country near his place, and I will see him, thought I. I thought it was a heavy affliction for a man to bear who had a family on his shoulders. I was driving through the district as I had done before, but I noticed while driving past the factory, along the river bank on the low lying land of blue clay, something that attracted my attention. Now, I am not a chemist, and have never been through college, but only at the plough. I noticed that there was a tremendous amount of water running through the blue clay; and a little distance off, on rising land, I saw cattle grazing, and there was an opening in the fence and the cattle came from this high land down to the low land and tramped this water with their feet and dropped their excrements round the edge of it. The cattle came down there and drank... I went to the factory and called the proprietor by name. I said: "How long have your cattle been drinking down here?" He replied: "The water is low on the upper land, and the cows have done nicely since the river gives us running water." I said: "There is the trouble with your stinking cheese." He called his boys together and explained this to them. I told them to take the cattle

away from this pest hole and water their cattle in some other way, and they did so, and the man has never had a bad cheese since.

I might cite another case. Some of us, as buyers, sometimes come across cheese with rust-spots on it. I have spoken to several about it; I asked everybody under the sun what it was that caused it. Some put it down to vegetable matter and some to another cause. The factory I refer to shipped to us this season, and has been doing so for several years. And, last year, we discovered this one trouble, of rust-spots, and wrote about it. It was, on one occasion, so bad we could not accept the cheese, and we wanted to find some one knowing more about it than we did ourselves... X... came to Montreal and saw the cheese. He had not observed these rust-spots in the factory. He had run across one here and there, but had not discovered the rust-spots as he discovered them in Montreal. Unknown to any one we tried to get at the trouble. When X... came to Montreal, two weeks ago, he said he had gone to the factory, and traced the water from the river where the animals were using it, up to its fountain head. And he told me that, down where the water ran into the river, he discovered on each side of the creek, or rivulet, a trace of rust and followed it up to where there were pools, and in the bottom of the pools there was rust, clean up to the end of the supply, and from the top to the bottom there were little pools where the water was stagnant, and in the bottom there were scales of red rust, which shows that there was something in the water that affected the cheese and its flavour.

ABSTRACT OF THE SPEECHES OF THE HON. LS. BEAUBIEN, (1)

Commissioner of Agriculture and Colonisation.

MR. PRESIDENT AND GENTLEMEN,

I am always very happy of an opportunity of attending your annual meetings. I feel I am at the centre of a grand movement, in the midst of men who are assembled to work for the welfare of the province.

In the position I have the honour to occupy, I take pleasure in acknowledging that it is by having put into execution a good many of your suggestions that we have succeeded in arriving at the satisfactory results we find everywhere. You are the devoted van of the army; watching over the common cause for the avoiding of shocks you trace out the most suitable road, the road that leads to success. It is in the van that are placed the best soldiers. It is your part, you the advisers of the nation when dairying, our leading industry, is concerned, to make the necessary investigations, to search out the deep secrets of the manufacture, the most recent improvements; and you have at these meetings an opportunity of conferring on the people the liberal gift of the result of your labours, and of thereby creating for yourselves a title to the gratitude and the respect of all.

(1) We give here an abstract of the two speeches, in French and English, delivered by the Hon. Louis Beaubien.

Every thing that is said here is gathered up with care, to be subsequently spread abroad throughout the country, either in your annual report, or through the Journals of Agriculture.

The first progressive step to be taken this year is the export of fresh butter to Europe. I am happy to say that I have succeeded in my support of your views, and that a premium of a cent a pound is to be granted for a still greater quantity of butter to those creameries that shall, every week, or at least every fortnight, export an invoice of butter as provided by the regulations.

Before arriving at this result, we have had to contend with many difficulties, with much opposition on the part of several, nay, even on the part of some of your fellow-dairymen. Sad to say, some men are so determined to adhere to the old system, they have so deep a horror of all improvements, especially if they necessitate some sacrifice, that there is no moving them.

But without losing heart, I opined that it is always the operations most arduous in their inception, that lead to the grandest results. For it is not without trouble that we have spread, throughout the province, the five hundred Farmer's Clubs, by means of which so rapid and so tangible a transformation has been worked in our agriculture. People were afraid of them; they fancied they were siege guns to batter down and crush the already existing agricultural associations. But we persevered, and now we have our reward. So will it be with our new enterprise of exporting butter. When the success that I confidently anticipate for it arrives, there will be nothing but praises poured out over it.

This idea of imitating the Australians, in offering a premium on export butter, was laid before me by your association, and I compliment you on it. It is thus you should always be studying how to avail yourselves of the plans of others, and trying at home those things that succeed abroad. In these days of universal activity, he who does not advance retrogrades, so rapid is the pace of the rest. Look at Australia! Twice as far is she than we from the markets of Europe, and yet she sells her butter at a higher price at Liverpool than we can! Why should this be, do you ask? I answer, because that country is not satisfied with only doing the best she can with her splendid farms and glorious pastures; but she has, in addition, studied the market, prepared it, taken hold of it. After having granted a premium four times as great as the premium we are about to give, Australian butter was largely advertised, offered pressingly over the whole of England, so that it arrived clad, so to speak, with a special official character. And you may be sure that, after their inspection of it before leaving the country, the government that granted the premium was certain of its quality. And the goods, though they came from a warm, antipodean country, from the fact that all these precautions were taken, all these attentions given, were received with satisfaction and sold rapidly.

To reach such a result, the Australian government grudged no expense; but if the premium was large, a great trade was established.

In attempting thus to open new markets for your dairy-goods, you are indeed,

Gentlemen, playing your proper parts. You are the guides, the scouts ; in your rear, the country will march onwards to victory.

In these novel experiments, the Dominion government is assisting us materially. If we produce an article, it will take upon itself to keep it safe until it is sold to the consumer. Refrigerators are established : in the sea-ports ; on the steamers ; and in the towns where our products have necessarily to wait for some time.

The refrigerators will be greatly improved this year, both at sea and on land.

Private trade has been aroused by this experiment. Companies for the construction of cold-storages are being formed at Quebec and Montreal. No need to fear any longer the damage done by exposure to the air, especially in wet weather. The goods will always be kept in a proper temperature.

Let me impress upon you that, while aiming at the preservation of our butter, we have at the same time put in motion an entirely new and important trade : the preservation in cold-storages of a great proportion of our agricultural products.

No longer shall we be compelled to dispose of these goods at the very moment when they are likely to be injured by the heat, or when the market is dull. No, we can wait without much loss, until the time for a favourable sale shall arrive.

In the fall, or at any time we prefer, the refrigerator will be ready to receive, besides our butter and cheese, our fruit, vegetables, pork, beef, our quarters of mutton. All these, brought to the proper degree of temperature, will be preserved in perfect order, and be always ready for exportation.

Before long, thanks to these refrigerators, we shall no longer export our bullocks alive, to be slaughtered as soon as they arrive on the other side.

We shall retain for our own use the refuse of the slaughter-house, by which the English now profit ; this will be handed over to the manure factories, while the meat, properly packed, will be sent over the ocean in much greater quantities, and at lower prices.

Abattoirs will rise up as numerous and at the same time as the refrigerators. Professor Robertson will tell you presently what the Dominion government is about to do to assist this new enterprise. If you will allow me to commit a trifling indiscretion ; he being about to address you in English ; I will tell you, in your own language, something about their intentions at Ottawa. It is intended to slaughter weekly, at Montreal, a fair number of beasts, to prepare the meat properly, cover it wtih a linen cloth, consign it to the refrigerator, where it will be subjected to the proper temperature ; I do not say " frozen," here, and for this reason, that the Professor himself will explain all this to you.

Packed in the refrigerators on the transatlantic boats, this meat on its arrival will be sent off to special depots, whose prorietors will be bound to sell no other than Canada beef. And a good thing, too, for nowadays, good Canada beef is sold as English or Scotch Beef, and the inferior beef from English, Scotch, or other farms, is sold as Canada beef.

The beef sent over by Mr. Robertson will be kept and sold separately by him or

his people, and as it will be obviously selected with care, it will be sure to be talked about; the goods will soon get a good reputation.

This, then, is what the establishment of refrigerators and the extension of the Professor's projects will do for us. There may be some risk to run, advertisements, etc., to make, but there is also a great trade to promote, and to arrive at that end, the safest and surest road is being taken. You saw how our experiment of last summer succeeded, how our first exportation of butter began to make us known on the English market; it will be the same next year; both Canada beef and Canada butter will soon enjoy a good character there.

Our butter will increase in value from all this work. Thenceforward, many of the cheeseries will be converted into creameries, and the number of the former being diminished, involving a less production of cheese, we shall be in less danger of seeing the English market over-crowded with our exports. Cheese, too, will rise in price; and, thus, by helping the export trade in butter, we have also come to the succour of the cheese-makers.

Up to the present time, we thought it right to promote the erection of new cheeseries, and following in the path traced out by others, we fancied we were assisting our farmers in general. But it did not take us long to see that we were travelling along the wrong road; and that all the pains we had been taking to encourage the manufacture should, if the trade was to be promoted, be devoted to discovering new markets, and to the export trade.

There is no use asking for more grants in favour of cheeseries. We can only aid the dairy trade by promoting exportation.

We shall, perhaps, be told: "But, see how low the price of butter and cheese is; and yet you keep on urging us to follow dairying. All the eggs must not be put into one basket. Why do you not pay more attention to the other products of the farm?"

To this I reply that, in the midst of all of our difficulties, it is still butter and cheese that return the greatest amount of clear profit to the farmer. Admitting that they have formerly fetched better prices, even now, at the low rates to which they have fallen, what products of your farm could you have done better, or even as well, with? With roots, or with grain? Why, these things have to be given away. With breeding horses or bullocks? Certainly not. No; dairying is still the best chance we have, even at the present low prices. Mr. Ayer was quite right the other day when he said to me: "Whatever happens, you must not stop the flow of milk." In sober earnest, the whole of our agricultural interest should be carried on with a view to the production of milk. Nowadays, we have nothing else before us that is worth anything. The products of our great North-West have completely crowded-out our own products.

With plenty of milk, we have, in addition to butter and cheese, the business of careful breeding, by which our herds may be regenerated and improved, as well as the making, not of pork, but of bacon. Ah! how right Mr. Ayer was: Keep the milk flowing.

For these purposes, you need pastures and green-fodder crops. Could I address the whole province, all our farmers in a body, I would say: "For the present at least, cease to call yourself farmers, and become graziers; if you do so, I can guarantee you success. When your cattle are well treated, well fed, your debts, if you have any, will soon be liquidated; the sun of prosperity will shed its beneficent rays over your path.

Pasture.

Is there any part of your farms so ill used, so left to itself, as the pasture? It is that portion that, with the least labour, will pay you best. But attend to it, nurse it well, sow it with a variety of the seeds best suited to it. Remember, you who only sow timothy and red-clover, that the latter cannot stand being gnawed at constantly, and only lasts, in full bearing, at most two years; but remember, also, that white-clover, on the contrary, is essentially a pasture plant, a true perennial. Take care of your pastures; harrow them, roll them, manure them, spread over them superphosphate, lime, plaster, ashes. Break about, once a month at least, all the droppings of the stock. If any grass-patches have run up uneaten, mow them at least twice during the summer; the grass will come again, more succulent than before mowing, and the whole level pasture will be at the service of the stock.

Green-fodder crops.

To fill up the gaps of the pasture, to help in the winter, you positively must have green-fodder crops. Every farm should have a field of them, large in proportion to the number of the herd. Manure and plough in the fall; cross-plough or grub in the spring; sow good seed, and keep the horse-hoe going all the summer. Plaster, too, and you will see the effect of that dressing.

The moment the pasture begins to fail, up with the scythe and start in with the cart; give your cattle at pasture all they can eat. When cattle at grass are well fed, not only they, but the land too profits. Moreover, your herd, having all it requires during the summer, will go into winter quarters in good order. Your green-fodder field should be extensive enough to furnish all the necessary provision for winter, and the silo is the proper receptacle for it. Or it may be put into shocks, or into the barn, in alternate layers with hay or straw.

Thus you will have milk both in winter and summer, and the cows you intend to keep no longer as milkers, will soon be fit for the butcher.

The system is simple enough, and every one knows all about it; unfortunately, but few, very few, carry it out in practice, though, if they did, it would lead them straight, rapidly to prosperity, while imposing upon them less of manual labour but greater exercise of the reflective faculties, and of the intellectual powers.

Bacon.

The Messrs. Laing, of Montreal, keep on telling us that they cannot get what they want in this province; they have to go to Ontario for it. People here persist

in making great fat hogs, whose meat is only fit for the pickling-tub, and fetches the lowest price. It would not be more difficult to breed and push forward, up to eight months old, young pigs of the Yorkshire or the Tamworth breed, and, provided you agree with a few of your neighbours to send a car load at a time, you can dispose of them profitably on the market that is open to you.

Your green-fodder will also enable you to make butter in winter, if you arrange matters so that some of your cows at least, if not all of them, as it should be by rights, shall calve in the fall. Tbis winter-butter will never hang on hand. In February, the Ste-Faye creamery was selling its butter at Quebec for 27 cents a pound! More of you ought to go in for such a chance.

You remember the experience of the two Brothers Houle, of Nicolet, of which I have already told you. Their small herd, when used for summer-butter, used to bring them in $250.00 a year; but, with the same number of cows, winter-butter returns them $500.00 a year, besides saving the carriage of the milk 8 or 9 miles!

The manure of your cows well fed in winter will be richer, in addition to the welcome sound of the money received for the winter butter. No dairy, no crops!

Our last butter exported to England in a fresh state, as you now know, gave us every satisfaction, and earned a good name, too, for itself.

The first shipment did not reach its destination, the vessel having been wrecked; still, it was all sold, and fetched as much as the rest.

So encouraged were we by this experiment, that the administration will greatly increase the sum devoted to this object.

Care of Milk.

I do not want to keep you too long, so I pass rapidly from one subject to another.

Every year, I make a practice of travelling through the province a good deal, either on colonisation business, or to visit the Farmers' Clubs. I always visit the factories I find on my road, as part of my duty. Many a time have I heard the maker complaining of the state of the milk delivered at the factory: not aerated; full of animal odour; filth left at the bottom of the cans, etc., etc. In spite of which the poor maker is expected to turn out an article of the best class! The farmer, who does not take proper care of his milk, not only injures himself, but his neighbours as well. What is the good of the latter being tidy in the management of their milk, if the other patrons are the reverse. I hope, therefore, that you will give strict orders to all the inspectors of cheeseries and creameries to attend to this matter.

Too many factories; The good-roads Association

We have often tried to find out how to put a stop to one great evil from which dairying suffers: too many factories.

A really good cheese can be more easily, more cheaply made in a large factory than in a small one. I need not insist upon this statement. As soon as the factory is well fitted up, all the utensils and implements must be employed as persistently

as possible, for to let them stand idle is to submit voluntarily to a loss of money; now, in a small factory, they have to stand idle of necessity : for want of milk to work.

These small factories have sprung up because every one wanted to have one at his own door, not reflecting that by taking his milk a little further, he would be sure of a larger yield from it, the large factories being assuredly better managed than the small ones. There has been a ruinous competition going on. In some parishes, there are from 9 to 12 creameries and cheeseries! It is as absurd as it is regrettable. In Ontario the tendency is just the other way; there, the smaller factories have been run together into large, central ones.

Every good maker says the same thing : if they had more milk, they could make better goods.

The good advice we give reacts very slowly. Still, we must continue to give it. The due respect to individual liberty makes any interference difficult, even if it is made with a view to benefit a man. If people will persist in throwing away their money, what can we do ? They are at liberty to ruin themselves, if they choose. When I am asked to apply a remedy, all I can answer is that I have none, the administration can hardly intervene. But, you may be sure that when I have discovered a remedy for such an evil, I shall not delay its application.

But, for yourselves, you can contribute greatly to the cure of this evil by hastening to join the Good Roads Association.

Let there be everywhere, throughout the country, good macadamised roads, especially the principal ones leading to the creameries and cheeseries; then the farmer will not grudge prolonging his route if he finds at its end that he has reached a large and flourishing factory.

In many parts of Denmark, every farmer has to prepare in winter his share of broken stone; the municipal authorities then come and round off the road-bed, build the bridges, make the ditches, and lay the stones. Why should not we do likewise, at least for the milk routes ?

Let those interested in some one factory agree together. I will do all I can to aid them. Government can get two or three road machines, and put them, in turn, at the service of associations such as the one you have just got up, or of municipalities that want them. A good road is a necessary appendage to a good factory. Good roads will cause a diminution of the ruinous competition that exists between factories, and those remaining, receiving a larger supply of milk, will have less difficulty in turning out a good article.

I, therefore, am heartily in favour of the formation of such an association as yours; I wish it every possible success, and I hope it will soon have imitators all over the province.

Good roads; there is one of the means of curing the evil you all complain of, the too great number of factories. If you can find other remedies, wise and practical, you may feel sure of finding in me all the support you can expect. I know well how great the evil is, how much injury it inflicts on our greatest agricultural industry.

I leave you now, gentlemen, to resume my duties at Quebec. A good share of my budget is devoted to you. We are working together for the benefit of the one and only thing that, at present, is prosperous in our agriculture. Whether prices rise or fall, let us persevere! Our cheese and butter must for some years be our principal products. Whatever happens, "Do not stop the flow of milk," as Mr. Ayer says.

May I be allowed, Mr. President, to propose that thanks be voted to the members of the clergy, who are present here to-day in great numbers, thus following in steps of our bishops, whom we have seen presiding over our agricultural comitia. Our clergy, we are consoled to say, are doing their best to incite the sons of the farmers to adopt an agricultural life, the only life that will never be overcrowded, the sole life that will always feed its children. Can we say the same of the rest?

Missioners and agricultural lecturers are now about to tell you what I myself announce to you with great pleasure: our agricultural schools, improved in every possible way, are ready to receive our lads as pupils. You must see by the proceedings at your meetings, by the improvements therein laid before you, how necessary instruction in agriculture is to-day, how necessary it is that the head should work as well as the arm.

In our schools, the lads will find intelligent practice united to sound theory. Let them respond to our appeal, and you and they will see the happy results that will follow the prosecution of earnest study.

MR. FOSTER:—Prof. Shutt will now address you on the chemistry of milk and its products. This afternoon we shall continue the questions of the manufacture of our cheese and payment by the Babcock test if desired, and treat more especially of the marketing of dairy products.

THE CHEMISTRY OF MILK AND ITS PRODUCTS—ADDRESS OF PROF. SHUTT.

Mr. Chairman and Gentlemen:

The subject that has been assigned to me is the chemistry of milk and its products. At the outset, I have to say a word or two about the meaning of the table which I have here to illustrate my remarks. I think we shall get a clearer understanding if you will allow me to substitute the word "composition" for the word "chemistry." Chemistry is that special branch of study which takes up the composition of matter, all matter, whether solid, fluid, or gaseous; and it further considers the laws and conditions which govern the transformation of these different kinds of matter.

You know that the whole universe is made up of certain fundamental matters which we call elements, and these substances as they are found in nature are either simple in their character (being composed of only one element), or they are found in combination, the resulting compound existing according to certain laws and made up of two or three or more of these elements. It is the business of the chemist to ascertain the nature and composition of all things, and, further, to study the laws which

govern the transformations of these various classes of materials through the agency of the atmosphere, or by plant and animal life. We must remember that the sum total of matter always remains the same. The elements change continually their place from the vegetable into the animal, and back again, through the atmosphere into the soil. Thus, matter is continually being transformed, appearing in different places, at different times; but the sum total is always the same. So, the farmer and the dairyman are only more or less skilful agents directing these changes, changes which the laws of nature are carrying on in the composition of matter in these different things which the farmer has to deal with. Chemistry therefore is directly related to agriculture; it helps us to classify our knowledge of farming and dairying. It is impossible to know all about the practice of dairying, unless we learn the compositions of the substances which we are handling every day. It is a matter of gratification that this question of chemistry, which a few years ago was considered somewhat ornamental by our practical farmers, has become in the opinion of our best men a very necessary part of the education of those who make dairy products, and who pursue agriculture as their vocation. And it is for this reason that we have established in our country agricultural colleges, wherein the element of chemistry, the composition of matter, and the laws governing the various changes which take place in matter, are studied. The profit in farming and in dairying depends largely upon the skill with which we can control the various agencies under which matter is transformed. It is the cow that produces milk, the sheep wool, and the pig pork, and it is so throughout. We direct the changes; we see that these animals have a proper amount of food of the right character and they transform it; we don't create anything, the animals don't create; the plants don't create anything; all they do is to transform this food by their life into different kinds of substances that we sell and make a profit on.

I am not going to take you deeply into chemistry. The universe is made up of some 70 of these fundamental substances that we call elements. We need not consider the thousand and one different combinations of them; but we shall concentrate our regard upon those which more particularly interest the farmer and the dairyman. From this standpoint we need only consider a very few. The elements which go to make up dairy products are only 13 in number, and of these some are more important than others. These elements are Carbon, Oxygen, Hydrogen, Nitrogen (known as the organic elements) and Calcium, Magnesium, Potassium, Sodium, Iron, Manganese, Phosphorus, Silicon, Sulphur (known as the inorganic elements), Starch, Sugar, Fibre and Oil or Fat contain only the first three elements; the albuminoids or protein contain in addition the element nitrogen. Water is composed of oxygen and hydrogen. The ash or mineral part of milk, of vegetable matter, of bones, etc., etc., is made of the inorganic elements named above.

It is essential for us to know this much, in order to follow any discussion intelligently, and for the purpose of posting ourselves in what is being done here and in older countries. In this matter of higher education in agriculture, I might say, that

we are only following in the wake of those agriculturists in Europe who for the past quarter of a century have realised and recognised the value of scientific work as applied to practice. We are only following in the steps of those who have seen the benefit of it, who have put into practice what they have learnt and have obtained excellent results. This education is not only a means of interesting our minds, but a matter which has returned to our pockets over and above that which we should have expected. So, I am urging the desirability and the absolute necessity of making a study of this subject, from an economical point of view more than from a scientific standpoint. Further, the study of chemistry as applied to the matters dealt with in this dairying business, enables us to take advantage of the publications, the bulletins, and the reports of our experimental stations, and much of the literature which appears nowadays in the Canadian press.

PERCENTAGE COMPOSITION OF DAIRY PRODUCTS.

Constituent.	Milk.	Cheese.	Whey.	Butter.	Buttermilk.	Skim milk.
Water.....	87.5	30.0	93.1	15.0	90..4	90.3
Albuminoids...	3 2	28.0	.9	.5	3.2	3.6
Fat.....	3.8	34.5	.4	82.4	.2	.2
Milk-sugar....	4.8	2.0	5.0	.....	5.5	5.1
Ash.....	.7	.7 *	.6	* .1	.8	.8

Now, to begin my subject. We have to consider, in connection with milk and its products, five constituents, water, fat, milk sugar, casein or curd, ash, most of which or all of which, you are more or less familiar with. I take, first of all, water.

We have already said something about water, but its importance merits further discussion. Water, is the universal vehicle in the plant, the animal, and in the soil, for the distribution and transmission of matter in solution. All substances, in some degree, are soluble in water, and it is by water that the food constituents in solution are carried through the plants in the channels which are intended for that purpose. The same is true for animals, food being carried to different parts of the body, by means of the blood. The digested matter is carried to the spot where it is needed for the nutrition of the plant and the animal. No growth in either could take place, save for this function of matter. Plants take certain food elements from the soil and others from the atmosphere. They cannot absorb matter, and convert it into their tissues without that matter or food being first dissolved. Sugar and salt are excellent examples of soluble substances; granite and ores will serve to illustrate insoluble articles. Then, plant food to be available in the soil must be soluble in water. The essential and most important function of soil-water is, therefore, that it dissolves the nitrogenous food and mineral matter in the soil which are necessary

* The differences that occur in the case of cheese and butter, between the total amounts of the constituents and 100, correspond to the percentage of common salt added in the process of manufacture.

for the plants sustenance and development. It is the same thing in animal economy as in plant economy. Animals must have water to perform the functions of digestion and assimilation. Food is valuable for the functions it has to perform in the animal, according to (1) its composition and (2) its digestibility. The constituents may be there, but unless they are digestible they are of no value to the animal. For a like reason, insoluble matters in the soil are of no use to plants. Water in a food—a succulent food for instance—is a great factor in the digestibility of that food. The principal uses of food in the animal system are to supply heat and build up the frame of the animal. Starch and sugar and oil by their combustion in the body develop heat and the power for work, the albuminoids furnish flesh and milk and wool and repair the waste of the tissues that is continually going on. So, the water supply is an important factor in connection with the digestion of food, for, as I have said, the value of food does not depend only on the constituents it contains, but also upon its relative digestibility. The purity of the well water upon the farm is a matter of vital importance, not only as we said yesterday as regards the health of animals, but also in determining the quality of the dairy products. We have examined during the past eight years many examples of water for farmers, and now we find the Ontario Creameries' Association has realised that the matter is one of such vast importance to the dairying industry that they wish me to undertake on a much larger scale than before the examination of samples of water collected throughout the Province of Ontario. They are fully convinced that the quality of the water has a great effect on the quality and wholesomeness of the dairy products of the country and the thriftiness of the cow, and, consequently, they think it well to have some data on this matter, so that concerted action may be taken with regard to water supplies and farm homesteads, in cheese factories and in creameries. In this connection I might say that already the Vice-President of The Creameries' Association has sent me, at his own expense, many samples of water from the wells of those who are supplying milk in the neighbourhood of Hamilton. I think that it is of equal importance with the testing of milk and examination of factories that our water supplies should be examined by experts. I hope the Government will see some way to taking action towards preventing farmers and dairymen, who have wells situate in barnyards and other dangerous places, from sending their milk to cheese factories. Men who send bad and tainted milk to the factory do an injustice to their neighbours who supply pure and wholesome milk. Much sickness in farmers' families and stock is caused by drinking contaminated water. During the past year, I have analysed nearly one hundred sampless of water at Ottawa and it is a significant fact that only a very small percentage of them were fit to drink. This then indicates the characters of the waters on your farms. These examples were not from one province only. This sad state of affairs I fear is wide spread.

J. C. DRAPER:—I should like to ask Prof. Shutt one question: What difference does it make with regard to the depth of a spring; does it make any difference whether it is deep or shallow, if it comes up boiling and bubbling, cool out of the ground or rock?

PROF. SHUTT:—As a rule, the deeper the source of the spring the purer the water should be, because water is purified in percolating through the soil. The conditions of the environment of a well, however, have a marked effect upon the quality of the water. With regard to the appearance of water: the appearance may be most deceptive. It seldom gives a correct idea as to quality. I have seen samples, quite clear and colorless, but on analysis shown to be reeking with organic refuse and filth. So it is not always the case that colorless water is pure, but the probabilities are that it is a good supply when it bubbles up in the way that Mr. Draper has described.

MR. DRAPER:—Is it injurious to drink it, or use it for dairy purposes, when it comes through lead pipes, a distance of about four rods? That is, does the lead affect the water?

PROF. SHUTT:—That would depend on the character of the water. Lead, when present in water, is certainly poisonous, but most waters contain a good deal of carbonic acid, and that in time forms a white incrustation on the inside of the pipes, and after that there is no further effect on the lead pipes. Without knowing the character of the water in question, I should say that in all probability there would be no injurious effect from the use of the water.

Now, we find that milk—normal milk, as it comes from the cow—contains about 87½ lbs. of water in a 100 lbs. We will make the statement at the outset that genuine milks fluctuate in their various constituents. It is not a fluid of constant composition. We have, however, means, chemical and otherwise, whereby we can detect watering. There is the Babcock test—the determination of the total solids in milk and the specific gravity—all of which assist in ascertaining whether a milk is adulterated or not.

Now, as to the next constituent, one which you have heard something of last night: the albuminoids. You will remember that the albuminoids are amongst the most important of all food constituents, and that they are characterised by containing nitrogen. Nitrogen is the name of an element which exist in a gaseous state in the atmosphere. The atmosphere which we breathe is made up of nitrogen and oxigen: four parts of nitrogen and one of oxygen, roughly speaking. Nitrogen as it exists in the air is a colorless gas; further, it is tasteless and invisible. These are some of the qualities of nitrogen as found in the atmosphere. It also occurs in nature in many other combinations. We find nitrogen in combination with various elements as in the white of egg, in the lean of muscle, in the gluten of wheat etc., etc. The chemistry of nitrogen is intimately interwoven in this whole chemistry of agriculture. We find that there is an absolute necessity for nitrogen in some form or another for the maintenance of plant and animal life. Without nitrogen — and nitrogen in the right form or combination — animal and vegetable life cannot thrive and develop. It is not possible for animals to assimilate into their tissues the nitrogen of the air — it must be supplied to them as albuminoids — a form first prepared by the plants. The albuminoids then are characterised by the presence of this constituent, nitrogen.

When you hear of that word: "albuminoid," you will remember that it refers to organic matter made by the life functions of plants, or by the life-functions of animals. Whence the name albuminoid? The white of an egg is known as albumin; and the white of an egg stands as a type of the albuminoids, for, in composition, it is similar to the curd of milk, the gluten of wheat, which we have been calling albuminoids. As albumen is a type of this class of bodies, all the bodies containing nitrogen in this same proportion are called "albuminoids".

Another illustration. You have meat, the lean portion which is formed in the animal by a conversion of the food he feeds upon; to this is likewise given the name albuminoids. The animal does not make it, it transforms it from its food: it is given to the animal in the vegetable matter, and then the functions of the animal transforms it into the muscles, or into the albuminoids of the milk.

The curd or casein represents the albuminoids of the milk. That is the principal part which is separated in making cheese. You understand that, in this act, you are separating the nitrogenous portion, principally, though at the same time the butter-fat becomes incorporated with the curd.

I should like you to go one step further into this question: The albuminoids in milk are not of simple composition: they are probably very complex. At any rate, we can separate them into two classes of bodies: a class which is separated by means of rennet, and which is known as curd or casein and a certain small part which is left in solution and which, in cheese making, goes into the whey. So you will observe that not all the nitrogen is taken out in making cheese: a certain amount is left in solution in the whey. Let us then separate the albuminoids of milk into two classes, that which is coagulated by the rennet, and that portion which remains in solution in the whey and which is called albumen. We say that the average percentage of total albuminoids in milk is about 3.5, or three and a half pounds in one hundred pounds of milk. Of this, about two pounds and a half represent the curd, or casein, or the part which may be coagulated by rennet, and the balance is the albumen which remains in solution in the whey.

Butter-Fat.

The next constituent of milk that we must consider is the butter-fat. Butter-fat also, like albumen, is not a simple substance; it is composed of several substances combined. It is what the chemist call a salt, using the term in its tecnichal and not its popular sense. Butter is very closely related to glycerine: it is in fact a combination of certain organic acids with glycerine.

I might say, in passing, that the chemist, knowing the composition of butter-fat, is able to detect the presence of oleomargarine. If it was not for chemistry you might have oleomargarine palmed off on the markets for butter. When I was in Chicago, in 1893, there was in use a great deal of oleomargarine. I asked some of the experts about it, they said it was utterly impossible to detect by mere inspection the difference between well made oleomargarine and pure butter. But the chem-

ist has but little trouble in detecting it; for the reason that, although oleomargarine is similar in appearance, its chemical properties are different to those of pure butter. We have in this an illustration of how chemistry protects the dairy man.

The following table will prove that my assertion that the butter fat is a true measure of the value of the milk for cheese making purposes, is correct. A careful study of its data shows that the curd increases with the fat in milk and that the amount of cheese from rich milk is greater than that made from poor milk.

RELATION OF BUTTER-FAT TO CASEIN AND YIELD OF CHEESE.

Per cent. of fat in milk.	Average per cent. of fat.	Average per cent. of casein.	Lb. of case in per lb. of fat.	Fat lost from 100 lb. milk.	Per cent. of fat in milk lost in the whey.	Lb. of cheese from 100 lbs of milk.	Green cheese for lb. of fat in milk.
From 3.0 to 3.5.....	3.35	2.20	.66	.32	9.55	9.14	2.73
3.5 to 4.0.....	3.72	2.46	.66	.33	8.33	10.04	2.70
4.0 to 4.5.....	4.15	2.70	.65	.32	7.70	11.34	2.73
4.5 to 5.0..	4.74	3.05	.64	.28	5.00	12.85	2.71
5.0 to 5.25.....	5.13	3.12	.61	.31	6.00	13.62	2.66

Sufficient perhaps has now been said about the properties of butter fat. However, it has been urged in some quarters that the butter fat is not the true measure of the value of milk when the latter is used for cheese making. If we are using milk for butter making, the butter fat is directly an absolute measure of the milk for that purpose, and I believe the same to be true for cheese. The table that I now present to you shows that the percentage of the curd increases with the butter fat in the milk. The estimation of butter fat is therefore a very important matter both in the creamery and cheese factory. We have established the reliability and accuracy of the Babcock test for this purpose. At first, it was necessary to test each patron's milk every day, but by the use of a small amount of potassium bichromate we can make a composite test, once a fortnight. Such results are all that could be wished for in point of accuracy. By such means the cost of testing milk has been very much lessened and a great saving of time effected. Great care is necessary that the samples should not be allowed to curdle, I have kept composite samples, for six or eight weeks, and at the end of that time they have shown the same amount of butter fat by the Babcock test as they contained at the beginning of the test. We may vary, within certain limits, the proportion of the bichromate without introducing any error. But one important point in the keeping of the samples is this. Every time a new sample is taken, the bottle should be inverted several times slowly and carefully, not shaken violently so as to churn it (for the fat then goes into globules and the remaining milk will be poor), but so as to thoroughly incorporate the risen cream. So we

have to guard against churning the milk by shaking it violently. If the cream sticks to the side of the bottle, put the bottle in warm water and shake again slowly the sample taken from the bottle will then be representive of the milk in the bottle. Thus you will have reliable results upon which to base your dividends to your patrons.

(Prof. Shutt here explained the figures on the table.)

We notice an average percentage of 3.8 of butter fat in milk. Milk will vary much in different breeds, and even to some extent from day to day in the same individuals. We have found milk containing as low as 2 per cent of butter fat, and I have analysed some which has given 7 or 8 per cent in our laboratories, but both of these are exceptional case. But as an average, for Canadian milk, we may take 3.8 per cent of butter fat.

Milk Sugar.

The sugar present in milk is known as milk sugar. It does not exist in the milk like the butter fat does, in minute globules which float all through the mass of the milk; but like the albuminoids it is in solution. Milk sugar is not as sweet as ordinary cane sugar; but chemically it is closely allied to cane sugar. When we use milk as food, the principal function of the milk sugar within the system is to produce heat. It passes easily into the blood, because it is in a soluble condition, and through the oxygen of the air in our lungs is burnt, and the heat which is necessary for the maintenance of life is developed. It is just as necessary to have material to keep up the animal heat, as it is to have food to build up bones and flesh. The amount of milk sugar is 4.8 per cent in a hundred. We may think then of milk sugar as being one of the constituents which adds very largely to the food value of milk. It does not at present enter into consideration in either of our commercial methods of treating milk; but in connection with the feeding of whey and skim milk it is a very important factor.

Ash or Mineral Matter.

Now, for the mineral constituents, or ash. The ash in milk is not subject to much fluctuation. As a rule we find between .7 and .8 lbs. in a hundred pounds of milk. What is this mineral matter? Whence does it come? It is chiefly phosphate of lime, a material which enters into the composition of all animals' bones. This phosphate of lime, contained in the mineral matter of milk, is not created by the cow, but is produced from the food we give her. And whence did the crops takeit? From the soil. So that the origin of the phosphate of lime in milk is the soil. It is always well to trace things back to their beginnings; it will help very much towards a rational method of proceeding with our work. When we understand that we are taking so much phosphate of lime from the land by means of our crops, we know that it is absolutely necessary to put back that phosphate of lime to maintain the productiveness of our soil. Unless we think of this, we lose sight of the origin of things, and then, of course, we cannot conduct our business either systematically or

economically. It is necessary for the farmer to know whence things come and whither they go. And it is the lack of this knowledge that explains why we have so much exhausted land here; for I have noticed some on my way hither. The fields are level, well cleared, and the soil evidently at first well adapted to farming and dairying, but, as you know, in many cases the yields are not great.

I was speaking to a gentleman, who lived for many years in the Townships. He said that the trouble is that much of the land here has been exhausted by the growth of hay year after year, and the people have not realised that they have taken the material out of the soil, sold it away, and never replaced it. We have, therefore, in learning the beginning of things, gone a good way towards remedying the evils of a bad system of farming.

Let us trace where all these constituents go to in the products of milk. First of all, in cheese.

Cheese.

(The Professor again referred to the table, see p. 241).

When rennet is added to milk, the curd is separated from it, and in the coagulation the butter-fat is also brought down. Cheese therefore consists chiefly of the fats and albuminoids of milk. The character of the milk and the mode of manufacture will very much determine the composition of the cheese. I have placed on this chart here what I consider to be the average composition of the cheese which we are exporting; that is to say, cheese containing 28 lbs. of albuminoids and 34 lbs. of fat in a hundred. You heard last night that these albuminoids were the chief constituents of food, those that serve to make the muscles and flesh parts of those who feed on them. So, cheese is a very strong food, even more so than the lean of beef, which contains a much larger quantity of water than cheese contains. It contains the constituents that go to build up the frame. The next constituent depicted on the chart is the butter-fat. In a good sample of cheese the fat is about 35 lbs. in 100.

When the rennet is added to the milk, the curd is precipitated and that brings down with it the globules of fat which are floating all through the milk. The curd was in *solution* and the butter-fat was in *suspension*. The separation by chemical means of the curd entangles with it, as it were, almost all the globules of fat, so that all the butter-fat is practically separated. The result is a mixture of the curd with the butter-fat, which, with a certain quantity of water, and after going through the press and the process of refining, is known as cheese. So, cheese is a product of milk eminently more nutritive than milk itself. The composition includes all the most important constituents of milk; it is a concentrated form, so to speak, of milk. There is about 30 per cent. of water in cheese; I am referring to the quantity we find in cured cheese. The difference between the sum of the casein, fat, and water, and 100, represents, practically, the salt added during the manufacture of the cheese. There is however, a small amount of ash, from the milk made into cheese.

Whey.

We shall now consider the composition of whey. The cheese and whey together represent the whole of the milk; what is not in the cheese, passes off into the whey.

Did I speak of any milk sugar in the cheese? No. The cheese is made up of three things; albuminoids, fat and water. Consequently, all the other materials, and chiefly the milk-sugar, will be found in the whey.

Now, first of all, as to the albuminoids in the whey. I spoke of a certain portion known as albumen which is not coagulated by the rennet; this is to be found in the whey. Consequently whey has a certain quantity of nitrogenous material which is useful for building up the flesh parts of animals. Of course, the percentage of water in whey is much larger than in milk, because we have taken out the greater part of the solids. We find there is, on an average, 93 or 94 per cent. of water, leaving 6 or 7 per cent. of solids.

The proportion of milk sugar in whey is somewhat higher than in the milk, because very little of the milk sugar remains in the cheese. You recollect what I said at the beginning, that milk sugar furnishes heat in the animal. In whey, we have a food for that purpose, but, if we want to make it a properly balanced food, we must add to it some material rich in nitrogen, something akin in composition to these materials we have taken out of the milk in order to make cheese. We can add them in cheaper forms, and thus make the profit on the cheese. Concentrated food, such as, crushed linseed and cake, will supply the lacking constituents.

Butter.

In butter, we have about 83 or 84 per cent. of butter fat, and the rest consists of water, salt, and a small amount of curd. The Government in England allow 20 per cent. of matter other than butter fat; but, when the water and salt and curd present exceed 20 per cent., they condemn the butter as adulterated. Butter may be said to be butter-fat, water, and the salt used in preserving it. The amount of mineral matter, apart from the salt, is only about one tenth of a pound, and the curd certainly not more than a half pound, in a hundred. The object in making fine butter is to keep out, as far as possible, everything except butter fat from the product. In fact, it should be free from curd and everything but butter fat.

Butter Milk.

We find in butter-milk the percentage of water is higher than in milk: it contains about 90 per cent. Butter-milk has greater value than whey, for the reason that it contains all the albuminoids. I said that, in making butter, we don't want to remove anything from the milk but butter-fat: everything else is left in the churn. We take out both the butter-fat and the curd in cheese-making. Butter-milk has feeding qualities of some value; because it contains the albuminoids. We find about the same proportion of curd in butter-milk that we find in fresh milk. Generally, there is about

two-tenths of a pound of fat left in butter-milk. The ash or mineral constituents are in about the same proportion as in milk, about .7.

Skim milk

The chief object in butter making is to get as much of the butter fat out of the milk as possible. In skim milk, if the cream has been separated well, we should not find more than .2 per cent of butter fat: all the rest should have gone into the cream. The albuminoids, of course, will be present in somewhat larger proportions than in milk; because 100 lbs of skim milk will represent more than 100 lbs of normal milk. So skim milk, in this matter of nitrogenous material, is more valuable as food than pure milk. It may seem strange to you at first, but reflexion will show this statement to be true. But in its use as a feeding material, we must supplement it with a certain amount of oil or fat, for animals require such in their food. It is necessary, when we use skim milk and whey, to see to it that this fatty material is supplied in some form. There are many ways of doing this, by linseed meal, cornmeal, cotton seed meal, etc. The object is to provide fatty material in the cheapest form that it is possible, and while, at the same time, it is useful to the animal.

Skim Milk and Whey compared.

Now, what is the difference in feeding value between the whey and the skim milk? It is chiefly this (they being fresh in both cases), that the skim milk contains albuminoids. They are valuable and nutritive constituents. Animals must have a sufficient quantity of them in order to do their best. Skim milk is more nutritive than whey therefore, because it contains the curd part of milk. With regard to the other constituents, skim milk and whey are very similar. The whey may contain more fat than the skim milk, but not very much. With regard to the sugar of milk, whey contains about the same amount as skim milk; what we have to remember is, that skim milk is of greater feeding value because it countains these albuminoids.

I would direct your attention for a few moments to the experiments that were mentioned, conducted, for the information of cheese-makers, by Dr. Van Slyke, with regard to butter fat. (Table already inserted, see page 241).

This table represents to you not isolated instances, not samples of milk from fine herds, but averages of large quantities of milk, the experiments extending over several months. It shows you what has been the result of making milks of different qualities into cheese. The accuracy of these figures is vouched for, the experiments have been carried on in the laboratory and the cheese factory simultaneously. We see that milk of the richness of 3.35 per cent of butter fat, contains about 2.20 per cent of casein. That is not synonymous with the term albuminoids. The casein is the part of the albuminoids that goes into the cheese. It does not give the relation of the fat to the whole albuminoids; but the relation of the fat to the part that is coagulated by the rennet. In milk of 3.35 per cent of butter fat we have 2.20 of casein; in other words, this means that there was .66 of a pound of casein per pound fat. And the loss

of fat from 100 lbs of such milk was .32 pounds, and 9.55 per cent of the total fat lost in the whey. But that is not important in connection with the question considered just now. The next column shows that 9.14 lbs of cheese were made from 100 lbs of milk containing 3.35 butter fat. Then the green cheese obtained for every pound of fat in the milk was 2.73. Now let us consider the milk between 3.5 per cent and 4 per cent fat. There is still .66 lbs of casein for every pound of fat. That is, that the casein or curd increases with the fat. As the fat went up, so the casein increased. This is an experiment performed in the laboratory, corroborated by cheese factory reports. We find in this case that 10.04 lbs of cheese was made from 100 lbs of milk —the richer the milk the larger the yield of cheese.

(The Professor made further comparisons on the chart.)

Now, with the richer milk is there any more fat lost in the whey? The numbers shown are practically the same. So there is no more fat lost in the whey from the the richer milk in the whey than from the poorer milk. When you calculate on the percentage of fat, you will find that the percentage of fat lost in the whey is less rather than greater as the milk grows richer. That answers the objection that there is more fat lost with the rich than with the poor milk. The amount of cheese per pound of fat is practically the same for both rich and poor milk. That is a very important matter. It will not be necessary to take you over all the details of this chart, a study of it will show you that the percentage of fat is a true measure of the cheese producing value of milk, and therefore, that the milk in cheese factories should be paid for by the Babcock test.

We have thus answered the objections to the Babcock test, and further shown that a good butter cow is a good cheese cow. There does not appear to be any cow which, because she gives a milk rich in butter fat, gives a small amount of curd. As butter fat increases in the milk, so do the curd constituents increase.

Thursday afternoon, December the 5th, 1895.

MR. WHERRY read his lecture, as follows:

Mr. Chairman, Ladies and Gentlemen,

The necessary appliances for the production of fine cheese are good water, a first-class building site and factory, first-class equipments and furnishings, a first-class maker, and first-class milk.

The most important points in the manufacture of fine cheese are: bringing milk to the right state of fermentation for setting, or adding the rennet; cutting, stirring and cooking to leave just the right amount of moisture in the cheese; giving the right amount of acid at the time of removing the whey; the right amount of hand stirring after the whey is removed, and grinding the curd at the right time. These are the first principles of fine cheese making, connected by so many details that I can only afford to touch on a few of the most important. Of these five points, the giving of the milk the right fermentation is the most important of all, and it can only be

successfully done by the most skilled makers. It has the most to do with giving the cheese that fine aroma, odor, or flavor, that is so much admired by our cheese experts; it also plays the most important part in the smooth, silky texture found in our finest cheese.

The most correct way of bringing about a true state of bacteria fermentation is what we term a ferment starter, which we manufacture as follows: save over thirty pounds of the purest milk you have, aerate it well to take in the ferment from the atmosphere and keep it at a temperature that will produce the first pure, sour ferment flavor or acidity when ready for use in the morning. By introducing this ferment starter into your vat of milk you overcome or destroy many of the bad odors that may be in it, and start the growth of the right ferment bacteria that gives it a beautiful flavor which you can smell all day long through the process of manufacturing, a flavor peculiarly pleasing to the human stomach, that has often, through mistaken ideas, been attributed to water, grass and other causes.

The preparation and rise of this ferment starter can be trusted only in the hands of experience and skill. If your milk is well advanced when it comes in, do not put the ferment in until just before setting your vat, if your milk is very sweet on coming in, put it in when the first cans come, and heat it up to 90°.

By using judgment in its use, you will never be troubled with the curd standing too long in the whey, and will get through with your work about the same time every day let the weather be warm or cold. If the weather is warm use small quantities, if cold use large quantities.

The cheese that I have made on the quick ferment principle have been pronounced the finest by all experts who have judged them.

Milk is the production of climatic and physical circumstances and requires treatment according to its own peculiar nature and locality. This difference of treatment consists in ripening the milk more or less, in using more or less rennet, in cutting the curd finer or coarser, in stirring so as to expel more or less moisture, in giving more or less acid at the time of the removal of the whey, in hand stirring more or less afterwards, leaving it a longer or shorter time in pack, and using more or less salt.

By skilful application of the means now in use and the varying of the above treatment, we can arrive at reasonably uniform results in all localities.

For illustration:—If the milk of a section produces by ordinary process a cheese too hard, dry and corky, ripen the milk more, cut coarser, stir less in the whey, heat to a lower temperature, give less hand stirring after the removal of the whey, grind earlier, and use less salt.

On the other hand, if by the ordinary process the cheese is soft, rich, pasty and clung, set the milk sweeter, cut the curd softer and finer, stir so as to expel more moisture while in whey, heat to a higher temperature, give more acid, hand stir dryer, let down a little more when in pack, and use more salt.

These rules should also be applied so as to produce uniform quality in the same

section different years and at different seasons of the year, thus enabling us to produce uniform cheese throughout Canada.

MR. PLAMONDON:—I should like to know why so much butter-fat is lost in the press in the July season?

MR. WHERRY:—It has always varied in my case in different seasons, and it is a sure case of loss of butter-fat when it is let down too far when in pack. I tried that to my satisfaction; I even kept it once, in the fall of the year, all night, and it was astonishing the amount of butter that ran out the next day in pressing. In the section that I have charge of, we have to stir our curd very dry, from the fact that there is a great deal of butter-fat in it. We have to stir it very dry, and whenever that is the case, that you have to hold it a longer time in the pack, we are liable to get almost too much butter. I have had more trouble in providing against that in the district of Bedford, that I ever had in Western or Eastern Ontario.

MR. PLAMONDON:—What is the cause of a floating curd?

MR. WHERRY:—Stinking milk; nothing else. It is rotten milk—I had a case where a man took home a load of bran and mixed that with a large quantity of whey and fed his cows with it. The curd came to the top the next morning.

MR. DOONAN:—Do you not think that this is the question to be answered? If the curd was stirred more in the whey, (and if it is firm enough in the whey it does not require so much stirring after the whey is drawn), you would have less loss in the butter-fat, would you not?

MR. WHERRY:—You will have loss by using it too roughly: there is danger of loss on an average.

MR. DOONAN:—I don't mean to stir roughly, but after you got it in a certain condition, then stir so as to get the moisture out of it.

MR. WHERRY:—I don't believe in stirring too much in the whey, or yet stirring it too little. There is a reasonable line to draw in both cases. But we have had more trouble with butter-fat in these counties in the past season than any time in six years that I have been there.

MR. HARVEY:—Do you not think that cooking too high would have a tendency to ripen the butter-fat in the cheese?

MR. WHERRY:—I should not like to raise the temperature. We did cooking as high as 102 or 103. I should not like to go beyond that; because I did it once, and I thought it was injurious to the flavor: that is, high cooking. I have heard of some makers last year cooking as high as 108, 109 and 110. I have tried it, and I think it changes the flavor of your cheese.

MR. HODGE.

MANUFACTURE OF AND TRADE IN OUR CANADIAN CHEESE.

Mr. Chairman and Gentlemen,

While fully realising my inability to appear before you as a speaker, or to do full justice to the subject before us, I thank you for inviting me to be present, and for

placing my name among the list of those who take part in the proceedings of this convention. I can only hope that what I may have to say in this paper may be of service to some one, and should such be the case, I shall feel that it has been a good thing for that one that I was invited to address you this evening.

We have all a place to fill in this life, and anything that is worth doing is worth doing well. I intend to be very plain and practical in my remarks, and shall deal with the subject before us only on those points with which I am most conversant.

In order for a mechanic to produce a good article, it is necessary that he should have the proper appliances with which to do his work; but unless this same mechanic uses his heart and brains while at work upon the article in course of construction, it is more than probable that many flaws will be discovered when the article is finished and placed on view for inspection.

As regard the manufacture of cheese, we will first look at the cheese-maker as a mechanic. He is the one that manufactures the article, and it is absolutely necessary that he should first see that the appliances necessary are in order; by which we mean, that he should see that his factory is so constructed as to prove a guarantee on all points of cleanliness. It has been said "cleanliness" is next to "godliness," and surely a cheese factory should be as clean as the kitchen and surroundings of a good, conscientious cook, who is anxious to put before those for whom she is cooking food that has been prepared with all due regard to cleanliness; and while we said above that the cheese-maker is a mechanic, we also say he is a cook, a mechanical cook, if you like; he prepares food that you and I, as well as hundreds and thousands of our fellow-beings across the sea, have to eat.

Every cheese maker knows (or should know) just what tools he requires to do his work well with, hence we will say no more on this point.

In regard to the article from which the cheese is to be made, let me say: no baker can make a good loaf of bread out of sour or tainted flour, neither can a cheese-maker make a good cheese out of sour or tainted milk, and he certainly cannot make cheese at all out of water, though, unfortunately, some patrons of cheese factories seem to think that their cheese-maker can use sour milk, or tainted milk, to perfection, and some even go so far as to imagine (they don't think to imagine) that their cheese maker is such a wonderful man that he can make cheese out of water, hence now and then we hear of a man that has added a little of this liquid to his milk, such men should be punished and punished severely. I cannot speak too strongly here, I am not sure what the *law* is on this point, but I think it would come under the act of adulteration of food, and if so, there is a punishment for such an offence.

We often meet cheese makers who, through fear of losing a patron, will accept poor milk, because he is afraid of hurting the feelings of the patron bringing such milk; but better lose a patron, even if it be the *largest patron* of the factory, than for a good man to lose his own reputation as a cheese maker as well as spoil the milk of

honest and conscientious patrons, and bring discredit upon the name of the factory he represents.

It perhaps would not be out of place here to say that when a patron leaves one factory and wishes to deliver his milk to another, he should give a reason for changing to the cheese maker of the factory he wishes to deliver his milk to; and if the cause for changing be because fault has been found with his milk it would be advisable for the cheese maker to be on his guard and watch him closely by testing his milk often.

Let me say a word about frozen milk. A few days ago I met a man who, for years, has been a first class cheese maker, and has made for one factory for a long time without having fault found with his cheese; this fall his patrons were anxious to make cheese as long as possible, and they continued to bring their milk to be made into cheese. One morning, when the milk was brought to the factory, the maker found it was frozen and very properly refused to received it; the patrons were angry and called upon the directors, who made up their mind that the maker was their servant, and such being the case he must do just what they wished and informed the maker that he must make cheese out of this frozen milk or give up his position. He calmly informed them that he would not attempt to make cheese out of frozen milk, and that as far as giving up his position as maker in that factory was concerned he wished them to understand that he would not make for them again under any circumstances. He did right. The probabilities are that the people most sorry will be the patrons, as a good maker, like the one referred to, never need go begging for a place: a man such as the one referred to is always wanted.

I want to say something now upon some of the things to be avoided by cheese makers. 1st, *filling cheese.* Some cheese makers seem to think that if they have a few pounds of curd left over from one day to another that all they have to do is to put it in the centre of a cheese the next day, the maker fully expecting that the buyer will not discover one or more cheese in a lot so filled. The maker may be right, the buyer *may not* detect the trick, but depend upon it somebody will; if not on this side of the water, it will be found out on the other side, and it may happen that the person cutting the cheese will be the first one to discover it, and *when* it is detected it does not take long to find out who is the guilty party. A cheese maker guilty of such an action is injuring himself, his factory, and his patrons, and is bringing Canadian Cheese into disrepute in that little Isle across the sea, the only place where his goods can find a market. Don't spoil good curd by mixing old curd with it, better throw it away altogether, if you have any curd left over, now and then; use it up by making an odd small cheese for which you can find a ready market among your patrons or store keepers in the locality: I would suggest a hoop of Stilton shape for this purpose.

Twin cheese.—Shippers of Canadian cheese and receivers of the same in Britain do not want twin cheese, neither do they want flat cheese, in short a cheese averaging 70 to 75 lbs. is the cheese that suits the trade best, but when a shipper finds a

box containing twin cheese they have to keep them out of the lot, and sell them for what they can get. Some cheese makers seem to be aware of all this, and I know of cases where some very clever work has been done in order to have all these twins pass as one cheese. I have known of two small cheeses being put together and a second bandage put over them; and I saw a box sometime ago containing two cheeses that was detected by chance, one cheese had been hollowed out and the other made rounded on top and the one neatly fitted into the other, both cheeses greased round the sides, and another bandage put on. This cheese was returned to the salesman of the factory in order that he may know that the man who did this work was a genius.

Sell twin cheeses at home if you have any or if you ship them put a mark on them and be prepared to take whatever a buyer can pay you for them.

Make your cheese uniform in size, no dealer will accept a lot of cheese as finest where the weights run from 30, 40 or 50 up to 70 or 75 lbs. The greatest care should be exercised in seeing that the cheeses do not rise above the boxes: this means damaged cheese in very many cases. It is no uncommon thing to see cheese, so boxed, with broken edges, and of course where this happens a claim for discount will be made, which means unpleasantness on both sides.

Inspectors.—I am of the opinion that some plan should be adopted whereby competent inspectors may be protected, and those who are not competent may be weeded out. Cheese buyers often hear the remark, "The inspector was at my factory and pronounced my cheese 'finest.'" One maker we know of this season who said, "Mr. —, the inspector, was at my factory, and gave me a certificate saying that my cheeses were not only 'finest,' but 'extra finest,'" while, without doubt, I considered them one of the poorest lots shipped to my firm this year. We declined to accept the cheese at all before we were put in possession of the said certificate, marked "extra finest," which, needless to say, we never got, for the reason that no such certificate had ever been given.

Another case, of which the highest authority on cheese in the Province of Quebec is aware (I mean Mr. McFarlane, he stands something over six feet); a certain party, known to some here, sold his cheese to a local buyer not 100 miles from this spot; the seller informed the buyer that Mr. McFarlane had passed them as finest, and the local buyer shipped them to Montreal and paid for them. The cheese arrived and were found defective in many points, being open, off in flavor, over kept, soft and pasty, some actually stinking. Mr. McFarlane was communicated with and asked for his report, which when given agreed exactly with that given above, and yet this salesman said, without a blush, that Mr. McFarlane had passed them as finest.

I therefore would suggest that something be done, and some plan adopted, whereby every inspector when examining cheese in a factory shall give a certificate stating how many cheeses he had examined, ranging from date to date as seen, and that every cheese so examined be plainly stamped; then, should trouble arise, it would be an easy matter to get at the bottom of it.

Of course it must be fully understood that when an inspector examined a lot of cheese and pronounced them "finest," that no factoryman would be justified in holding his cheese in the factory until they had become strong, over-ripe, and otherwise defective, simply because an inspector had given a certificate stating that the cheese were "finest" at the time of inspection. No man can serve two masters; and in my opinion, a cheese inspector has all he can do to attend to his business as inspector, and that he has no right to act as cheese buyer for any house. I know of one case this season where an inspector, representing a certain section or county, spent nearly a week in Montreal, attending to the sale and inspection of a lot of cheese made in several factories that he had bought for a certain house, when he should have been at his post, helping makers to produce a class of cheese of such a quality that would not require anyone to go to Montreal about, as far as quality was concerned. Of course, it is not out of place for a representative of one or more factories to go in with the cheese, but I maintain this duty should be left with some one specially appointed as is done in very many cases, but not with an inspector. I may say that I am sure that there is not a house in Montreal that has a feeling against the inspector personally, when he acts in the capacity of buyer or salesman, but there is so much that a good instructor can do in the county or district he represents, that he can find enough to do to keep him fully occupied among his factories from the day his factories commence operations in the spring until the day the doors of the factories are closed in the fall.

You are all aware how much has been said regarding French cheese. Some people in Britain have gone so far as to say that they do not want French cheese at all; why I cannot tell. There are others who say nothing about French cheese, they ask for *finest cheese* and expect to get *finest cheese*, and they care not whether they are made by an Englishman, an Irishman, a Scotchman, or a Frenchman, in fact, if a Celestial from China made the cheese and it were of the finest quality, there would be no questions asked as to which country the man that made the cheese represented.

I may say that I know of some factories in the very heart of the Province of Quebec where scarcely a word but French is spoken, where cheese is made and shipped to Britain, that sells alongside of, and give as good satisfaction as cheese made in any part of Ontario. In proof of this, I may say, that for some years we have had standing orders for some of this cheese from some of our best and most fastidious customers.

I must say, however, that in some of our so-called French sections, there are too many small factories, and I claim that this is one reason why there is a great deal of poor cheese made in these sections. I know (and many of you know), of sections where there are three, four or five factories huddled together, and that if all the patrons were to deliver their milk to one place, it would only mean one fair-sized factory. I hope the day is not far distant when we shall see a number of these small factories wiped out of existence, as where this sort of thing exists, it only means a lot of trouble to makers, buyers and all concerned.

With your permission, I want to make another reference, *en passant*, to cheese-makers. There was a time when a buyer on going into a factory was met by a man as cheese-maker. Where are we to-day ? In a great many of our factories in this province a lad goes into a factory as assistant or helper, he has been there one season, and during the winter following the season he has worked as an assistant, he is looking for a position as cheese-maker to take full charge of a factory. This is a mistake. I maintain that a man is not capable of taking charge of a factory until he has put in at least three or five years as assistant or apprentice, and I hope such will be made compulsory. It is necessary in all branches of business, where good workmanship is required, and why should it not be necessary in cheese-making ?

Have boxes to fit your cheese that are made of the best material, and that are well made and that have proper fitting covers, a great many boxes arrive in Montreal badly smashed owing to badly fitting covers.

Don't fail to use scaleboards on top and bottom ; merely having cap cloths on the cheese is not sufficient, though, in my opinion, cap cloths, such as you can buy now to fit your cheese, are a good thing.

See that the cheese when weighed are not weighed too close; they lose weight quickly; and see that the weights are put on the box plainly and in the right place.

If you have a day's make of poor cheese, (if you have, you know it), mark them with an X below the weight, where it is sure to be seen, as every receiver takes the the weights of your cheese before shipping them.

In conclusion, Mr. Hodge made some remarks on the classification of cheese by the buyers, and on its sale in England. He spoke strongly against the making of "hay cheese."

The acting president, Mr. Foster, requested Prof. Shutt to answer any questions in reference to his lecture or the charts that were shown on.

MR. MACFARLANE :—What is the best thing to feed with whey to pigs and calves? Because most of the people make cheese in the summer time, and it is important to know the best thing to feed with that whey.

PROF. SHUTT :—Whey, as noticed this morning, is poor in albuminoids (organic constituents of food, rich in nitrogen and in fat). You have to see that is supplemented by materials that contain fat and albuminoids. I would suggest grains of various kinds, and specially linseed cake and corn meal. Seek to supply by such means the constituents necessary to make a balanced ration. The coarse fodders will not do this ; it must be a concentrated feed of the kind I have mentioned. Linseed meal is food of a highly concentrated character ; it contains a large quantity of albumiuoids, and consequently would supply the elements that whey is lacking in. Corn meal is rich in fat and will supply the lack of whey in it. With regard to clover : clover is a fodder which is also particularly rich in albuminoids. Clover hay, weight for weight, is more valuable than timothy, because it supplies in large quantity these albuminoids that I have spoken of.

MR. BARNARD:—While Prof. Shutt speaks on this matter, I should like to ask some explanations upon the advisability of using straw in connection with ensilage and the very best of clover and other rich food. Straw is poor food taken alone: but sometimes with rich food it is useful. I should like to have the professor's opinion as to whether he would recommend straw with rations of silage with pease or clover fodder containing a very high proportion of nitrogen ?

PROF. SHUTT:—I presume you refer to cattle ?

MR. BERNARD:—Yes.

PROFF. SHUTT:—We have to recognise this fact as to foods: they are not all of the same value. We have to understand the digestive capacity of the animal we are feeding; because the digestion of food depends on the character of the animal consuming it. For instance, ruminants, sheep and cows, can extract from straw what pigs are not able to get. Different animals require different kinds of foods because their digestive organs and digestive fluids are different. Speaking of straw with regard to cattle: there is straw and straw. We have experimented cutting hay at different periods of growth, and we find it increases in value up to a certain point and afterwards begins to deteriorate, and the longer the hay is left after it is in that condition, the poorer it becomes; not only less digestible but poorer in the more valuable constituents of food. The same may be said of straw. At first, in the early stages of growth, it contains a considerable quantity of albuminoids, but after it dries and becomes hard, it loses its good qualities in some degree. As the grain becomes fully ripe the straw becomes poorer as food. The straw is harvested when the grain is mature. We grow it for the grain and only secondarily for the value there may be in the straw. Straw, cut before the grain is fully ripe, has more food value than that cut later. The straw of oats is of more value than wheat straw. I consider that a certain amount of good straw should form a part of every ration. It is possible that when given with more nutritious foods a greater return is obtained than when given alone.

Cows can extract considerable nutriment from straw. Further than this, cattle require bulky food by virtue of the conformation and size of their digestive organs. There must be a sufficiency in the stomach of the cow in order that she may properly digest it; in order that the function of digestion may proceed regularly. It would not be possible to keep cows economically and in good health, by giving them nothing but concentrated food. The digestion would be deranged. We must have something to fill them up, so to speak. Hay, straw, silage, and all coarse forage crops, are suitable for that purpose. We must see that while we have the right proportion of albuminoids and fatty matter, this concentrated food must be mixed with bulky fodder, which, in itself, may not give much nourishment, but allows the gastric juices to work to advantage. The mechanical condition of food has much to do with its digestibility — and for that reason chaffed food is advised. Thoroughly mix the grain with the chaffed coarse folder. Thus, we know that oats are above all as concentrated food for horses. That has been looked into again and again. The

albuminoids are not there in a larger proportion than in wheat. Their value for horses seems rather to lie in the fact that ground oats do not make a sticky paste in the stomach of the horse, like ground wheat would do. Thus there is a greater opportunity for the digestive fluids to act. It becomes more intimately and finely mixed with the saliva in the horse's mouth.

With regard to the question of Mr. Barnard: cattle can extract a large amount of nutriment from straw; and at the same time the straw will do much in bringing about that proper condition of the food by which the digestive fluids can act upon it in the best manner.

JOSEPH WARD:—To go back to the Babcock test: tice on the chart, Professor, in the last column but one, that the milk lowest in fat gives 9.14 of cheese, and milk highest in fat gives 13.32, which is nearly one half more. I understand that these tests were taken in New York; if they had been taken in this country, the present method would be more defective because there must be only a fraction of difference here. The question is, what is the average test of our milk here in Lower Canada?

PROF. SHUTT:—I have not any data with reference to the matter with me. The data on this chart were taken at New-York, but they represent what I believe to be the quality, taken on the whole, of our milk. In certain sections where the product is well looked after, the quality is higher; but I think that 3.50 of butter fat will represent the average of our milk.

MR. PATTON:—In Chateauguay 4.05 would be the average of our cows, just now.

M. CHAPAIS:—I saw in the reports of the Ontario Dairy Association, that for ten years the amount of milk necessary to make a pound of cheese was 10.44. Our Dairy Association in this Province, by taking an average through the syndicates, shows that of our milk it requires only 9.55 to make a pound of cheese. I think these the only data we have to this date about the richness of milk for Ontario and Quebec. In the French region below Quebec, we have had for five years 10 $\frac{7}{8}$ pounds of cheese per 100 lbs. of milk, *i.e.*, 9.19 lbs. of milk to the pound of cheese.

M. TACHE:—For three years, in Beauce county, three factories joined together gave an average, during three years, from 3,000 tests, of 4.10, giving between 4.50 and 4.60 of finished butter. This is for all the space of time, calculated in the average tests between the fifteenth of May until the 10th of November of each year.

MR. WHERRY:—The average tests that I have made in Brome county this year are 4.10. That was out of milk just as it came in.

Respecting the representations of Mr. Wilkins and Mr. Woodward in reference to the report of the Secretary upon the award of certain prizes at the Montreal Exhibition, Mr. Barnard answered that the matter of the report in question had been left to a special committee, that was studying the subject and was not ready to give their report to-day. The Directors of the Society are entitled to say whether they have to make a report or not.

Mr. Woodward's representations were especially in regard to Stanstead County, which he claims had secured the highest point in a certain competition, and yet had received no prize at all.

Mr. Foster represented that the matter had been placed in the hands of a committee to report; the details would be gone into and satisfactory explanations given and published, and the interested parties were free to attend upon the committee and give any explanations they wished.

M. TACHE:—Will Professor Robertson furnish us with the result of some experiments carried on at the experimental farm establishing a comparison between salted and unsalted butter, of which I saw two or three samples in a box at the time of my visit there ?

PROF. ROBERTSON :—The tests were being made as to the preservation of butter and are not finished. The butter is still being held and is to be examined once more. So far, the tests show that the butter could be kept very well without much salt, if kept in the proper way.

I have a question which has been sent up as to frozen corn for silage : whether frozen corn in a field loses much of its substance before being put into the silo. The freezing in the field stops the growth and the crop gains nothing more. If it is frozen after it has attained its growth, it loses nothing when it is put into the silo: it is as nourishing as if it was taken at the end of its growth.

MR. FOSTER :—I have also a question to submit. I notice in the papers that there is a great deal of agitation in Parliament about dairying, and with regard to the lactation period of our cows. I think this is important and that there should be an expression of the convention upon that subject. M. Bernatchez called attention to the fact that the cow needs rest.

PROF. ROBERTSON :—Being asked to say something about the milking period of cows, I will repeat what I have advocated, what I have taken from observation and experience. The cow is not kept for ornamental uses. She is kept for working purposes. The average cow in the province of Quebec should work for ten months in the year, and she should have two months in which to finish growing her calf. The flavor of the milk is not very nice within two months of the period of calving. The cow needs no rest beyond that. If she can be milked eleven months from the time of taking a rest, none the worse; but the milk is not nice to be used for human food or for butter, so I should not like to advise having the milking period longer than ten months. You will find it will pay you to have all your cows calve at not the same season. If you desire calves in September, make some of them calve then. In the ordinary course, they will calve in the spring with regularity. They will calve at any season you please. It will pay, and you will make more butter and cheese, and that of a better quality by having some cows come in at all seasons. Make cheese five months, or five months and a half, and butter the rest of the year. Then, cows will earn enough for you. A cow is not worn out by working hard. The cow that

spends all the winter in resting does not win any honors. The cow that milks all winter, keeps well; but those that have been resting are the ones needing to be "tailed up" in the spring. So it does not pay to let them rest too long at your expense.

The Branding of Cheese.

I should like to say a few words about the branding of cheese. The matter has been discussed quite fully, and with a good deal of feeling, at Ottawa, while Parliament was in session. A Bill was brought requiring the branding of the name of the month in which the cheese was made on the cheese. I don't favor that, because it is not a good thing to do a good thing at a wrong time. Last March and April, myself and others who were watching the trade, thought there would be very low prices in the summer time. If the Bill had passed compelling the branding of the cheese, and the prices had gone down, as they did, people would have said: "Look what the Legislature did. It has put the price of cheese right down." So I reported to the Minister of Agriculture: "I don't favor the putting of the name of the month on cheese this year. It may do harm, and should be left alone for a year."

With regard to putting the month when the cheese was made on the cheese, I don't see any advantage in it, except as a record. But for the transaction of business, I prefer putting a figure to designate the date rather than the name of the month, so that nobody would be in a position to beat down the prices on account of prejudice, in the manner alluded to by Mr. Hodge in his admirable address. Cheese buyers are quite willing always to use their efforts, and all the arguments they can, to get the best value from the man that sells to them. Now, if you have cheese marked "June" and "July," and the cheese buyer contends this is good cheese, but, in England, there is a prejudice against June and July made cheese, and I can't give you as much this year as though they were not branded. The cheese buyers are subtle enough to use that argument, if "June" and "July" are branded on the cheese. The buyers are arguing down, and you salesmen are arguing up. The Canadian buyers also might be at the mercy of the English buyers: they are standing between you and them. The English buyer says: "I want 5,000 boxes of finest cheese for November delivery." And the Englishman does not care what mark there is on the outside; he wants to sell the cheese on its merits, and he does not like to have "June" and "July" on his cheese. It questionable whether it would be an advantage to have "June" and "July" branded on your cheese. But a figure does not excite prejudice. So, while I would recommend the manufacturers to use a distinguishing mark or figure for recording purposes, I would not stir up the prejudices of the people. Then, the consumers would have no handle to use against us.

We have managed to get a good trade for cheese in England under the name of "Canadian"; that is the only name quoted on the markets of England to our advantage. I think that we ought to have this word "Canadian" branded on all our cheese going to England or elsewhere, and I also favor the using of a registered

factory number on every cheese. We should in that way have something more than competition going on between Canada and the States, between Canada and Australia and other countries, we should have very wholesome rivalry amongst ourselves in England. I should like to see friendly rivalry between Brockville and St. Hyacinthe, Perth and Cowansville, Belleville and London, Listowel and Ingersoll, so that the manufacturers in each would strive to have cheese the best of all the Canadian cheese.

Now it has been mentioned that there has been cheese made in this Province which, when sold in England, sold as high as the very best English, or the best from Ontario and other parts of Canada; and this almost exclusively from French districts. That may be; but let me ask this, do the factories where these cheese are made, that sell up to the best Listowels in England, do they get Listowel prices for the cheese from the French speaking districts?

UNKNOWN:—They get Brockville prices.

PROF. ROBERTSON:—It would not be a bad thing for shippers of cheese, and it would be a good thing for the factories, if extra good quality was recognised as such, and paid for as such, no matter where found. So I have favored giving each factory a chance to register its own brand and number, so that no other factory shall be allowed to use that brand or number. For instance; if the factory's brand is 1005 no other factory in the Dominion could use that number. In the annual report of the Commissioner, a number would be assigned to each. The customer in England might know in that way his favorite cheese bearing the number 1005, and this would secure for that manufacture an excellent reputation on demand. Every factory would have its own number, and it should be made illegal for any other to use the brand except the one registered in its own name. We ought to have the word "Canadian" denoting the general standard of quality, and then we ought to make it possible for localities or Provinces to register another part of the brand. First, there would be "Canadian," then on the lower part there would be the name of the Province, and in the centre the registered number, 1005 or whatever it might be. For instance, all the numbers up to 2000 might be for Ontario, and from that to 4000 for Quebec; making each section into blocks of numbers, leaving room between them for new factories. So an English buyer would be able to tell where the cheese was made. That would give a chance to every manufacturer to have his cheese known by the customers under his own number, thus exciting the keenest competition for the make of the best factories.

I desire to say further to you, that we have in the city of Montreal an official inspector of cheese. He has been there all the summer and has not been very often employed as yet, but will, possibly, be more frequently employed hereafter. I want to advertise some of his functions or uses. I think his presence and work there are essential in the interest of the producers and the buyers of cheese. It has been said two or three times in this convention that cheese may have certain faults. I have never seen a wholly faultless cheese, and I don't expect I ever shall. There must be some faults somewhere; it may be a little too dry, or a little too soft, to please some body. You will remember Mr. Ayer's speech, wherein, which discussing the value of

the cheese buyer to the cheese trade, he said this:—"How will you find out to what market to send firm cheese, and where to send soft cheese, etc." After the cheese is sent in to the warehouse, if you have firm cheese, the buyer may say:—"This is firm cheese, this will not satisfy my customer: he wants soft cheese." But it was his business to know before buying your cheese whether it would satisfy his customer or not.

Another point is this; when a buyer, doing a great service to you, has bought anything at a full price, he takes it to Montreal, where, if the cheese and the market both satisfy him, he receives it without a murmur, but if either does not please him he takes it only at a lower price. That manufacturer may suffer "the cut" although the cheese was all right for another market. So it is the buyer's business to see that the cheese is the style he wants, before or when he buys it. If the cheese has a cracked surface, it is inferior cheese in all markets; if it has open holes, it is inferior in all markets; if it not well shaped, it is inferior in all markets; if it has distinctive faults, they are distinctive faults in all markets. The buyers can take delivery of them or not. We want the inspector in Montreal clothed with such sufficient authority; then, if he finds the cheese complained of is good cheese, according to the Canadian brand of cheese, the buyer must take it at the price agreed on, whether it is peculiarly suited to his customers or not. There is no possibility of making a buyer buy if he does not want to buy, but if he wants to shirk his bargain and thus preventing others from buying, he his bound to fulfil his agreement. We must protect ourselves against getting less than we should get. This inspector at Montreal is there to act fairly by all parties. His work should put the trade on a fairer basis, and make the buyers more careful.

I should like it known that, next year, the inspector will be to the front, in order to ensure that the treasurer shall get the price that the salesman sold it for. Anything our department has done, or intends to do, has nothing in it to injure the interests of any of the parties concerned, to the detriment of our cheese business. Patrons, makers or buyers, one can't do injury to either of the three without hurting the whole business. The inspector must do his work; it will not injure the buyer and it will help the cheese maker. When he makes a fine cheese he will not lose part of his wages because his cheese happens to be a little too firm or a little too soft, or of a certain flavor, or of a certain texture unsuitable to a particular customer. The patrons in that way will be encouraged. These men will do their best to create wealth in the country where the laws are just and fair and well administered. The inspector's work will be fair for all three classes and will make this dairy industry more prosperous.

MR. FOSTER:—Don't you think Professor that this matter of recording the different factories is a most important one? Do you not think that it is highly desirable to secure legislation in the different Provinces?

PROF. ROBERTSON:—My impression is that legislation will be passed along that line during the next session of Parliament; so that every manufacturer shall have

the right to register a number at head-quarters at Ottawa, be authorised to use it, and everybody else be forbidden to use it. Every one would have their own goods under their own brand.

A good thing, as far as you can do it, would be to establish Boards of Trade, and sell your goods at them. If you organise good Boards of Trade and sell goods at specified prices, you will have the best factories recognised, other factories will copy their methods, and the whole thing will be put on a safe basis.

ADDRESS OF MR. W. A. GRANT.

Mr. Chairman and Gentlemen,

The foundation and success of the dairy industry, like every other successful business, depends upon the honesty and the ability with which it is conducted. We cannot make men honest by act of Parliament; we also know that everybody is selfish to a greater or less extent, and always will be, and this industry is progressing like every other by the survival of the fittest. When the lion and the lamb lie down together, the lamb will be inside the lion.

Mr. Grant took exception to Professor Robertson's statement concerning Mr. Hodge's address, to his attitude towards cheese buyers, and to some of his methods upon which the trade should be conducted, as they were calculated to disturb the confidence now existing between the cheese shippers and the factorymen, and continued as follows:

What is to be desired more than anything else is confidence; it is the lack of confidence and not the lack of money that brings about commercial crises and panics, and I, for one, will never try to stir up any feeling whence there may arise any lack of confidence between the buyer and the seller. I have not heard of even one lawsuit between any shipper and factoryman in the eight years that I have been in Montreal.

With regard to the Government inspector at Montreal, though I do not wish to refer to myself, yet, in justice to the position which I occupy, I may say that I have bought over 200,000 boxes of cheese this season, besides 4,000 or 5,000 packages of butter, and but one man asked me to have his cheese inspected by the Government inspector; that is, I think, a fair proof that the men dealing with me were satisfied with my judgment, and I can say for one, and I say it proudly, that I have been in business for fifteen years shipping cheese and butter, both from New York and Montreal, and have never been sued by any factoryman or any person in the business, and neither have I sued anybody else. Perhaps, many times, I have been in the wrong, but the men dealing with me were lenient to me as I have been to them. We do not want to destroy the confidence that exists between the buyer and the seller by any mere talk, and when we consider that from twelve to fourteen million dollars worth of butter and cheese is annually sold in Canada, it is really remarkable that such a vast amount of money should be dealt in with, practically, no friction.

Now, my idea regarding the way a part of this business should be managed is that every cheese and butter-maker throughout the Dominion should pass an examination and be certificated before making either article. The maker should have the power of returning any bad milk; he should also have authority to compel every patron contributing to the factory to send him a sample of the water from which the cows drink, and he himself should be compelled, by act of Parliament, to send such samples every month to the Government chemist for analysis. Now, if the cheese-maker had the power of refusing milk that he thought was not fit for use, the patron could not take it to the next factory, and this would stop a lot of antagonistic feeling between the patrons and the factory. What is done about delivering milk to the factory in dirty milk cans? The patron says: "There is your milk, take it," that man has twenty or thirty cows probably. The factoryman or the maker says: "You have bad milk," and the patron invariably replies, "Well, you will have to take it and do the best you can with it; if not, I shall go to the other factory." Then, the burden falls upon the maker, and he does the best he can with it, and the consequence is either bad cheese or bad butter, and as the maker generally guarantees to make a first-class article, without any stipulation as to the quality of the milk, the maker is frequently the loser on this account, and, at the end of the season, on account of the cut in price, has worked part of the year for nothing, or even at a loss. My sympathy, I may say, is wholly with the makers. If a maker, through spite or any ill-feeling, should refuse to receive good milk from any patrons at the factory, and the same is known to be so, his certificate should be cancelled or should be suspended for a given time. I quite agree with Professor Robertson that cheese should be paid for according to quality.

Here, Mr. Grant asked Mr. Robertson how the Prince Edward's Island cheese was paid for two years previously, and Prof. Robertson replied that it was all paid for at one price. Mr. Grant replied that he had seen the cheese, and that the quality had varied fully as much as ½c. per lb. in several of the lots, and Mr. Grant continuing, said that it was an extremely difficult matter to pay always according to quality, because there were times when for some reason or another, one of the best factories might go wrong, and if this factory got less than its neighbour and *vice versâ*, it would create discord and bad feeling; consequently, one had to do the best one could under the circumstances. In this regard, in trying to please everybody, we should please nobody. Now, for example, if I were to go into a section to buy 20 factories, the first factory accepts, say, 9c., the second demands and I give a fraction more, and so on until every factory is bought. At the time, everybody is quite satisfied with the knowledge that he has beaten the last factory sold, but when all is known at the end, the only man who is perfectly satisfied is the man who has sold for the highest price of the whole twenty, and the chances are that some of the best factories would be sold from ⅛c. to ½c. a lb. less, and it is quite possible that the poorest factory might even receive the highest price; consequently, in trying to please all, I should please only one, and I should find it difficult to buy its cheese again.

PROF. ROBERTSON:—There are three points in Mr. Grant's address I want to correct. In the first place there has been a very great deal of confidence on the part of the sellers towards and in the receivers of cheese in Montreal. I don't wish in any way to destroy any of that confidence; but the experience of some of these men caused them to have less confidence, and they wanted an inspector appointed. The presence of an inspector is the very thing that will inspire confidence. His presence will ensure fair play, and the feeling of confidence will be increased.

Then, I have been reminded that I am all for the producers because there are more of them. I have said, and I repeat it, that I am for fair play, and as far as I know the producer is the only one that has suffered until now. Then, it has been said that I recommended the sale of cheese once a month, and that I did not sell cheese that I controlled once a month. You heard me telling about the selling of butter in the same spirit as about the selling of cheese, because my judgment in these matters rarely varies. Yesterday, I said: "Put butter in a safe place as soon as it is made; don't hold it in a cellar to spoil and sell it in that state." I have told the Brockville people, and everyone else, that I held Prince Edward's Island cheese because I believed in cheese this year. I said so in August, and I say so now again. I then helped to keep the market up. I want to put this trade on a safer basis for regular profit, and to establish better business methods all through.

I am glad to see that confidence can be maintained, and the inspector can help to maintain it. As I said in Montreal, he will be there for the purpose of seeing fair play between all those concerned in the business.

MR. FOSTER proposed a motion, on the lines of that proposed in French yesterday. expressing satisfaction at the action of the Provincial and Federal Governments in providing cold storage on steamers, etc. The motion was seconded by M. Taché.

ANNUAL MEETING OF THE DAIRYMEN'S ASSOCIATION OF THE PROVINCE OF QUEBEC, HELD AT WATERLOO, QUE., 3, 4 AND 5 DECEMBER, 1896.

Moved by H. S. Foster, Esq., seconded by M. J. de L. Taché, and resolved that,

Whereas the Dairy Association of the Province of Quebec, in annual convention assembled, knowing of the great losses which have been caused, and the serious hindrances to the progress and prosperity of the farmers of the Province of Quebec, which have existed from the want of proper cold storage conveniences and agencies for the transportation and distribution of perishable food products under their own name of "Canadian" in their best condition as to uninjured quality when they reached the consumers of them in Great Britain;

This Association hereby expresses its satisfaction with the action of the Federal and Provincial Governments in providing cold storage service for butter on railways and on steamships, and in promoting the exportation of creamery butter in a fresh-made condition;

This Association further begs to urge upon the attention of the Federal Government the desirability of giving such continued assistance as will further improve

the cold storage service on steamships for dairy products, and further this Association, having learned from the address of the Dominion Dairy Commissioner that a plan for the opening up of a trade in dressed meats with Great Britain is under the consideration of the Honourable the Minister of Agriculture desires to place on record its conviction that any action by the Government, which shall result in putting Canadian beef, mutton, poultry, and other perishable food products on the British markets in their best condition, under their own name, will confer inestimable benefits on the farmers of the Province of Quebec, and will give a much needed outlet for the products of live stock at prices which will be profitable to the farmers and highly advantageous to the whole of the agricultural interests ; and

Further, this Association desires to convey to the Federal Government its most respectful and earnest petition that such action be taken as shall give the relief which is urgently needed by the farmers in this matter;

Further resolved that a copy of the foregoing resolution be forwarded to the Honourable the Minister of Agriculture of the Dominion.

MR. FOSTER:—I have much pleasure in calling upon Mr. Parmelee, who has always been very anxious to promote the dairy interests in this district and has assisted more than any other man in developing them.

MR. PARMELEE:—Mr. Chairman and Gentlemen,—It is rather late now to make a speech, when you are all exhausted from a long afternoon session. You are altogether too kind in your reference to me, Mr. President. Whatever I have done for dairying I have done with a sense that I had a common interest with the people in this district, and I don't feel that I deserve any special thanks.

At the outset, although I have not the honor of an acquaintancee with Professor Shutt, I wish to be permitted to thank him for the excellent explanations he has given regarding the Babcock test. For three years, we have been using the Babcock test, and 20 factories in the Shefford Syndicate have been paying for milk according to its richness, as ascertained by the Babcock. So, I was glad to hear Professor Shutt confirm our judgment, and show us that our practice was right.

But, this, Gentlemen, is not what I came here especially to speak of; I am here to speak more particularly of the selling of cheese. There is perhaps no particular quarrel between the buyers and sellers; but the buyer has an interest in buying as cheaply as he can, and the seller in getting as much as he can for his money. It is difficult for the factory men to sell cheese under certain circumstances, especially when they are removed from large centres and not in a position to get the best information about the market. The buyers are apt to tell them cock-and-bull stories, and the selling of cheese becomes a difficult matter; and dealing very often with salesmen having the very best of intentions, the best men in their respective factories are possibly deluded, and sometimes make bad sales through no fault of their own. That cannot, perhaps, be helped; that is something we have to put up with. But there is another feature of it: there is another way the sellers can improve their position. The fac-

tory men have no quarrel with the buyers, but they do want fair play. I do not mean to accuse the buyers of bad faith, but for the last two or three years the general practice throughout the Province has been to sell subject to Montreal inspection. Buyers come along, and say to factory men: "We will give you so much for your cheese." The sellers accept, and the cheese is shipped, the sellers acting in perfect good faith. Afterwards, the buyers assert that the cheese is defective in quality, and they lower the price to the extent of a quarter of a cent, of three-eighths, and sometimes a half, and even five-eighths of a cent. Now, that practice is bad in itself. Possibly, the cheese was not always up to a quality equal to the price at which it was sold; but the proper place to establish the quality of the cheese is at the factory, when the buyer and seller are together: when they have come to an agreement, that agreement should be carried out. Otherwise, there is no bargain, but trickery and misunderstanding. The interests of buyers and sellers ought to be common to a great extent. The exporters of cheese to the old country should be fairly remunerated, but no more. If you could eliminate from the cheese business the speculative element, it would be a great boon, I believe. The buyers had a pretty lean year in 1894. The fact is, the English market was glutted; in 1895, cheese was a drug in the market, and we lost more money in 1895 than we gained by good prices in 1894. Therefore, if we could get cheese on a steady basis, so that it could reach the English market regularly, without the help of the speculators, giving the buyer a fair profit for his share in the business, the trade would be on a better basis than it is to-day.

But to return to the practice of selling cheese *subject to inspection at Montreal*: I think it is particularly unjust to the makers. The makers enter into a contract to produce a good quality of cheese, and, while they do not all come up to the very highest standard, they make the cheese and sell it, and the buyer knowing that under Montreal inspection he can, if he wishes, recover himself by "cutting," in case he has paid too much, promises to pay a little more than the cheese is actually worth. The cheese goes to Montreal, and though it may be good, the cheese maker afterwards learns to his surprise that it has been "cut." Under this system it not infrequently happens that good makers lose all their hard earnings, and their reputation as cheese makers is spoiled besides.

I know the system of selling at the factory would do away with all this bother; then, the seller would pay what he promised; and the buyer would deliver the goods that he promised; thus conducted, the whole cheese business would rest on a better foundation. This past season, there have been terrible "cuts" all over the Province of Quebec, except in some localities where they have adopted a different system. I think it is possible to adopt generally the system we have here; that is, the system of delivery at the factory. In our syndicate, three years ago, the members entered into an agreement by which they were not to sell until the cheese had been inspected at the factory, and the quality established; and, for the three successive seasons that we have sold in that way, we have found the buyers as anxious as ever to get our cheese at

top prices. They sent men competent to judge the cheese at the factories, instead of having to make "cuts" at Montreal, and thus arouse hard feelings on the part of the sellers towards the buyers of Montreal houses. Our business has gone on as smoothly as possible, and we have secured as good prices as other localities, without suffering the annoyance and loss occasioned by the practice of "cutting." Now, it seems to me that this is the best plan. It is to the interest of buyers, as well as of sellers, to conduct their trading on good business principles, but it is not a good business principle to promise a certain price and then pay a lower price. Under that system, the unscrupulous buyer does much harm. The unfortunate makers are crushed between the Montreal houses and their contract with their patrons. Now, I say, that, in the whole Province of Quebec, it would be possible to adopt the practice I propound. There is another feature; if that system were generally adopted, there would be employment for those who have learned their business and know what good cheese is, and having tried that system, as we have done in our district, I am sure you would not return to the old way of sending your cheese to Montreal and submitting to "cuts," as has been done during the past year.

MR. FOSTER:—I wish to say a few words on the organisation of boards of trade for the sale of dairy products. We have had an opportunity of testing that system in Bedford, and I feel it is a matter that ought to occupy the attention of the Province of Quebec generally, because, really, the only true way of bringing our goods before the public, and getting them recognised on the market, is to sell them by auction through a Board of Trade. I certainly believe it to be to the interests of every district that a Board of Trade should be organised and its cheese disposed of by that board. There may be objections to that system, but the principal local men, and the Montreal men, are well disposed towards it, provided the board be conducted on business principles. But see that you organise so as to dispose of your goods and advertise them to the public. One district will know what the other does, and will know why they cannot get the same prices. That is the main object we have to contend for to-day. We have to improve our quality, and there is no way so well calculated to do that efficiently as this one I propose. To those who have cheese to sell I would say, they ought to get more uniformity of make throughout. Being advertised and sold by a Board of Trade, is more likely to give it prominence and attract the attention of the consumer, which is one of the most important things we can aim at. I am anxious to have the question of organising Boards of Trade discussed.

MR BARNARD:—I should like to hear M. Chapais, on this point. He represents a district a great distance off, fully 130 miles below Quebec, where factories have been established for many years and where, before adopting this system, there had been some difficulty in getting the real value for their cheese.

M. CHAPAIS:—In the district in question there is a large factory, and we thought we could sell better in this way. We advertise our cheese, and the buyer comes to the factory and tests the cheese, weighs it there, accepts it there, and

pays for it before delivery at the station. Since 1886, we have always sold that way, and we have not been "cut" in our sales since that time.

M. DALLAIRE:—They are doing the same thing in Chicoutimi, I think.

M. TACHE:—On account of the immense detriment that has been caused to cheese, through the bad quality of the milk delivered, farmers are advised to deliver it in perfect order to the factories. But it seems, from the usual practice, that the greatest amount of detriment caused to milk has been by the infection of the vessels that hold the milk. It seems that wooden whey vats are used in cheese factories all over the province, and they are a great cause of infection. They stand from the spring until the fall without being cleaned out the whole season. How, then, can we recommend farmers to be neat and clean about their milk and take every precaution in the delivery of their milk, if it is afterwards turned into foul wooden-vats, and if this meeting does not protest against the use of wooden whey-vats? What would you think if we were to tolerate farmers milking their cows into wooden pails and keeping their milk in wooden vessels? The use of them is totally prohibited at the farm-house, why not also at the factory?

I beg, then, to put this resolution before the meeting:

Proposed by M. Taché, seconded by M. Chapais, and carried unanimously,

"That, considering the immense damage done to the quality of the cheese by the use of wooden whey-vats:

"The Dairyman's Association earnestly advises the proprietors of cheeseries in this province, to replace their wooden whey-vats by tin ones."

MR. JOSEPH WARD:—There are two associations interested in this business, there is the Cheese and Butter Association in Montreal that buys, and the Dairy Association that attends to the manufacture of butter and cheese. There should be some understanding between the two; and the Montreal concern should have something to say with respect to the inspectors of the factories. The inspectors teach men to make cheese for the Montreal buyers. There is a great deal of training required to judge cheese; and it was shown here by Professor Robertson and Mr. Ayer, that there is firm cheese which will suit some customers, and soft cheese which will suit others. It is important than the salesmen should keep the inspectors well informed with regard to these matters, and this would of course require some mode of communication between the two. This would, I think, work good results later on.

MR. BARNARD:—We are willing to meet the Montreal chamber as often as its members desire.

MR. J. WARD:—I believe the inspectors should go for information to Montreal; the buyer should know his customers, and the inspector, too, should know them. I think the inspectors ought to be glad to get a certain amount of useful information from the Montreal men; for, we are competing with other countries, and instead of fighting between ourselves, we should be united.

MR. BARNARD:—We have no ill feeling against the purchasers of our goods. It would be ruinous to contend with our customers. But we have Professor Robertson here as our guest; we have invited him to come and give us information, and from him we got the best information possible.

At the late exhibition in Montreal, this Association proposed a meeting, to the chamber, at which the buyers, on the occasion of the butter and cheese competition, might have given the Inspectors of Syndicates all the information required. This offer, made through M. Vaillancourt, was declined. Mr. Ward wishes that the inspectors, the servants of the Association, should go and see the dealers, but the dealers do not seem desirous of meeting them. The inspectors are under the control of the Association. We should be happy to gather every kind of information regarding the trade, and it was for that purpose that the dairy-school was established. We do not pretend to know everything; we are ready to allow our officers and inspectors to enter into relations with the Montreal dealers, but this must be brought about through the Association's permission. I make this statement that there may, in future, be a better understanding between the chamber and the Association.

MR. FOSTER, Acting President, proposed votes of thanks to Professors Robertson and Shutt, to all persons who have spoken at the Convention, and to all those who have taken part in it. Also to the people of Waterloo, for the reception tendered by them, and generally for the treatment that the Association has received at Waterloo. The motion was seconded by M. Castel, the Secretary, and unanimously concurred in by all present.

A similiar vote of thanks was tendered to the Acting President for his able and impartial services as such.

M. TACHE, on behalf of the Committee on the audit of accounts, reported as follows: We have found all the entries and the vouchers correct. (See the statement of receipts and expenditure, p. 269.)

REPORT OF THE COMMITTEE ON SAMPLES OF SILAGE.

M. D. B. Bourbeau presented the report of the examining committee of silage. Only two samples were examined, one from Mr. David Inglis, West Bolton; the other from M. L. Tassé, St. Athanase.

Mr. Inglis' sample of maize, was well-kept and was placed first. M. Tassé's was of maize, horse-beans, and sunflower-heads: Mr. Robertson's mixture, in fact. There were but few beans, the blossoms having been destroyed by insects. Not fermented enough for "sweet silage"; rather acid.

Mr. Guay's samples of maize, from Chicoutimi, did not arrive in time for examination.

RECEIPTS AND EXPENDITURE OF THE ASSOCIATION 1895.

RECEIPTS	APPLICABLE TO THE YEAR 1894	1895
ASSOCIATION—Subscriptions received		$1,323.00
Sale of reports and books		223 35
Divers		73.67
Government Grant		2,000.00
		$3,620.02
SYNDICATES—Supplementary Grant, 1894	$1,235.31	
" " " $ 600.00		
" 1895 2,750.00		$3,350.00
SCHOOL—Supplementary Grant, 1894	764.69	
" 1895		2,000.00
	$2000.00	**$8970.00**

EXPENSES

ASSOCIATION—Printing	$166.50	$920.82
Paper and Divers	13.85	637.51
Directors' Travelling Expenses	42.90	336.17
Expenses of the Convention		276.62
Secretary-Treasurer	9.00	705.00
" (Assistant)		195.00
Purchases of books and Subscriptions	506.35	314.58
Extraordinary Expenditure	50.00	240.70
	$788.60	$3,626.40
SYNDICATES—Pay for Year 1894	$284.84	
For Year 1895, Salaries 1,200.51		
Travelling Expenses for Year 1895 1,650.12		$2,850.73
SCHOOL—Pay for Year 1894	$789.17	
Repairs and Improvements $ 318.72		
Annual Expenses 1,679.34		$1,998.06
	$1862.61	**$8475.19**

RECAPITULATION

	Association	Syndicates	Schools
Receipts	$3,120.02	$4,585.31	$2,764.70
Repayments by the Syndicates to the Association for advances	950.47	950.47 ([1])	
Total	$4,570.49	$3,634.84	$2,764.70
Expenses	4,415.00	3,135.57	2,787.23
Balance—Surplus	155.49	499.27	Deficit 22.53
		155.49	
Total Surplus		654.76	
Deficit		22.53	
In hand		632.23	

([1]) See 13th Report of the Association (note p.)

SYNOPTIC TABLE OF THE REPORTS OF THE INSPECTORS OF SYNDICATES.

The members of the Dairymen's Association will find on the other side of this page, the table in which the Inspector-General of Syndicates strives, every year, to summarise the work of each of the local inspectors and the results obtained in each syndicate.

The task of the Inspector-General has been rendered difficult by the establishment of many new syndicates; in others, as well as in some of the older ones, the reports of the inspectors, and of the factories, have either not been sent in, or sent in so incomplete a form that they cannot be used in the construction of the table.

Once more, the inspectors of syndicates and the secretaries of factories are earnestly requested to bear in mind Article 12, III., of the regulations of the Syndicates, which is as follows:—

"III., Art. 12.—The proprietors of every factory, or their representatives, shall "pay a subscription to the Dairymen's Association, or to the dairy association of "the district in which the syndicate is formed, in order that the members may be "kept well informed about the work of the Association. Moreover, they shall "forward to the Association a complete and certified report of the operations of their "factories," in accordance with the official form adopted by the Association, which "report shall only be published with the consent of those concerned."

Here, it is evident, is an obligation incumbent upon the representatives of the syndicated factories to fulfil. The Dairymen's Association warns them, once for all, that the grant of $250.00, given by the Government to the syndicates, is only payable on presentation of a certificate from the Association, showing that the syndicate has discharged all its obligations; and the Association trusts that this warning will bear fruit in the future.

Milk has been paid for according to its richness, as shown by the Babcock test, in: (1) 6 factories; (2) 1 factory; (3) 9 factories; (4) 2 factories; (5) 5 factories; (6) 1 factory; (7) 10 factories; (8) 11 factories; (9) 10 factories; (10) 2 factories; (11) 2 factories; (12) 20 factories; (13) 9 factories; (14) 3 factories; (15) 3 factories; (16) 1 factory; (17) 1 factory; (18) 1 factory; (19) 1 factory. Total, 99 factories.

The charge for making has varied in the factories of this syndicate:

* From 1 to 1½ cent the pound of cheese.

* * From 1 to 1⅞ " " "

SYNOPTIC TABLE OF THE

NOS. Of the Syndicate.	NOS. Of the Division.	NAMES OF THE INSPECTORS. — CHEESERIES.	NUMBER OF Factories.	Days of Inspection.	Short Visits.	Tests of Milk. Lactodensimeter.	Tests of Milk. Babcock	Letters Written.	Fines Inflicted.	Patrons.	Cows.	Numbers in Order.
1	1	Dancosse, Geo..... (1)	24	86	27	1892	581	16	.....	231	....	1
1	2	Roy, Chas. P..... (2)	17									2
1	3	Allard, J. N.....	22	130	.....	2989	776	20	3	815	.....	3
2	3	Wilkinson, W. T.....	22	107	42	2602	941	7	5	750	4892	4
1	4	St. Pierre, Germain... (5)	23	94	37	1771	2219	3	2	655	3866	5
2	.....	Wilkins, Chas..... (6)	16	134	103	1670	920	9	1	422	3028	6
1	5	Pothier, B. A.....	24									7
2	.....	Parent, Wm.....	20	81	191	2311	720	13	1	831	5368	8
3	.....	Proulx, Théod.....	18	132	85	2921	427	26	1	595	.....	9
4	.....	Désautels, A. E.....	17									10
1	6	Parent, J. E..... (7)	23	133	83	2725	1472	8	3	651	4163	11
2	.....	Palmer, W. H..... (8)	23	148	90	1333	3157	6	1	591	4425	12
1	7	Woodward, A. W..... (9)	22	153	86	1859	2005	26	.....	625	4865	13
2	....	Gerin, Aug.....	15	113	59	. ....	.....	8	2	378	2290	14
1	8	Plamondon, J. A.....(10)	26	130	117	4812	2400	21	.....	1285	6528	15
1	9	Standish, Ch. E.....	21	120	93	4276	1679	79	3	447	2360	16
1	10	Marsan, Arth.....(11)	22	.....	.....	.....	.....	.....	.....	.....	.....	17
2	.....	Ferguson, Geo. W....(12)	23	156	146	394	7606	4	.....	.....	.....	18
3	.....	Wherry, Rob....	25	.....	.....	.....	.....	.....	.....	.....	.....	19
4	.....	Macfarlane, Arth .....(13)	25	160	127	1706	2944	30	.....	895	7895	20
1	11 & 12	Lacoste, D.....	22	126	197	5789	2010	10	11	1042	5975	21
1	12	Lloyd, A. S.....(14)	20	140	75	3915	3651	41	10	798	6783	22
1	13	Ferguson, A. M.....(15)	15	155	150	1154	513	16	2	.....	.....	23
2	.....	Bennet, Chas. S.. . ..(16)	15	154	133	1364	1877	11	1	432	3793	24
1	41	Paradis, Firmin.....(17)	16	62	54	1188	416	24	.....	345	2118	25
2	.....	Tremblay, Pierre.....	21	.....	.....	.....	.....	.....	.....	.....	.....	26
3	.....	Hudon, J. E.....	24	.....	.....	.....	.....	.....	.....	.....	.....	27
4	.....	Gagnon, Alf.....	21	112	70	1949	581	7	.....	553	2743	28
1	15	Trudel, F. X. O.....	28	.....	.....	.....	.....	.....	.....	.....	.....	29
2	.....	Aubin, Sam.....	24	109	80	2821	1173	13	5	677	4209	30
1	16	Lacourcière, L. P. ....(18)	26	.....	.....	.....	.....	.....	.....	.....	.....	31
2	.....	Lacerte, Pierre.....	24	117	31	3297	931	21	.....	755	2716	32
3	.....	Parent, D. J.....	23	106	136	3184	953	10	9	796	5024	33
1	17	Parent, A. H.....	18	.....	.....	.....	.....	.....	.....	.....	.....	34
1	18	Gareau, J. E. D.	20	130	35	3476	628	29	2	664	3883	35
1	19	Ross, Jos.....(19)	20	130	500	1257	1002	26	.....	480	4756	36
		CREAMERIES.										
3	3	Henry, Gab..... (3)	15	31	9	422	9758	3	2	845	3861	37
1	20	Desrochers, Gab..... (4)	22	.....	.....	... .	.....	.....	.....	668	3175	38

REPORTS OF THE INSPECTORS.

Numbers in Order.	Number of Factories having sent in Reports.	TOTAL OF: Milk Received.	TOTAL OF: Cheeseries and Creameries.	TOTAL OF: Money Rec	Charge for Making.	AVERAGES. Milk per Cow.	Cheese or Butter per 100 lbs. of Milk.	Lbs. of Milk per lb. of Cheese or Butter.	Milk in Vats. Lactodensimeter.	Milk in Vats. Babcock.	Money Received by. Patron.	Money Received by. Cows.	Money Received by. 100 lbs. of Milk.	Price of the. Cheese.	Price of the. Butter.
		lbs.	lbs.	$ c.	cts.					p. c.	$ c.	$ c.	$	cts.	cts.
1	1	3,020,466	B 139,664	24,488.87	3.5	....	4.62	21.5	....	.....	106.00	....	65.3	....	17.5
2															
3															
4															
5									30.5	4.1					
6	3	1,488,113	145,127	10,586.27	.....		9.75	10.25	.....	.....	95.37	15.92	71.1	7.22	.....
7	5	1,989,010	199,834	14,428.00	*	2195	10.00	10.0	30.9	4.03	102.32	15.93	72.5	7.22	.....
8															
9	20	12,669,083	1,263,330	97,617.26	*	2360	9.90	10.1	31.4	4.65	117.47	18.18	77.0	7.72	.....
10	2	1,310,886	130,828	9,911.38	1.5	....	9.90	10.1	31.2	3.95	147.93	.....	75.6	7.57	.....
11															
12					1.5				31.6	3.90					
13	23	9,389,858	903,487	64,631.53	1.5	2122	9.60	10.4	32.8	3.75	109.35	14.61	68.8	7.16	.....
14															
15	8	3,337,148	315,494	23,267.38	1.5	2392	9.45	10.5	31.3	3.71	117.51	16.68	69.7	7.37	.....
16	14	8,960,939	B 48,883 / F 761,990	68,465.31	*	2379	....	....	31.1	4.18	95.50	18.18	76.4	....	....
17	8	6,062,550	501,569	44,664.85	*	2568	9.75	10.25	29.4	4.00	99.92	18.92	73.6	7.55	.....
18															
19	.....	14,643,706	B 142,287 / F 1,220,374	.....	*	....	....	....	....	.....	.....	....	....	....	....
20															
21	24	15,940,190	1,474,148	113,506.93	**	2018	9.24	10.8	31.6	3.84	126.82	14.37	71.2	7.69	.....
22	10 { 2	1,220,337	B 55,404	9,441.81	3,5&4	1736	4.54	22.02	30.9	3.55	66.49	13.58	77.3	....	17.2
23	8	4,507,456	F 427,930	32,812.69	.....	2167	9.50	10.52	30.9	3.55	91.14	15.77	72.7	7.68	.....
24	14 { 5	5,378,907	B 223,772	35,716.39	.....	2136	4.16	24.03	....	.....	150.07	17.42	66.4	....	17.6
25	9	7,155,739	F 681,490	53,585 60	.....	2712	9.53	10.49	....	.....	178.61	20.31	74.8	7.8	....
26	15	10,725,432	997,787	.....	....	....	9.30	10.75	....	.....	.....	.....	.....	.....	.....
27	15	11,457,305	B 78,014 / F 860,021	.....	.....	....	....	....	.....	.....	.....	....	.....	.....	....
28	15	5,749,637	B 46,985 / F 454,623	40,316.46	.....	2714	....	....	....	.....	116.86	....	70.1	....	....
29															
30															
31															
32															
33															
34															
35	13	4,303,021	444,618	32,312.73	.....	2120	10.34	9.67	30.7	4.01	87.33	15.92	75.09	7.26	.....
36	17	.....	.....	.....	.....	.....	.....	.....	33.0	4.03	.....	.....	.....	.....	.....
37															
38	20 {	B1,216,404	51,880	8,948.41	.....	2452	4.26	21 12	32.3	4.03	82.09	18.04	73.5	....	17.26
39		F5,515,144	518,523	37,018.97	.....	1628	9.22	10.8	22.3	4.03	66.70	10.93	67.12	7.14	.....
40	20	9,809,880	932,108	72,650.62	.....	2062	9.52	10.5	....	3.85	151.35	15.27	74.5	7.79	.....
41															
42															
43	12	7,477,246	347,720	58,955.27	.....	2367	4.65	21.5	....	4.20	76.85	18.65	78.8	....	16.95
44	11	7,965,857	350,051	61,821.83	.....	2508	4.39	22.7	....	.....	92.54	19.47	77.6	....	17.66

LIST OF THE CREAMERIES AND CHEESERIES OF THE PROVINCE OF QUEBEC.

ARGENTEUIL.

MUNICIPALITIES.	PROPRIETORS.	Cheeseries.	Creameries.
Arundel	E. J. Graham	1	
"	Wm. McNish	2	
"	Rev. P. A. Bouchet		1
Chatham	Thos. Ross & Son	6	
"	W. J. Morrow	1	
"	Amedée Leroux	2	
"	H. Pilon	1	
"	Janvier St. Onge	1	
Gore	Joseph Cyr	1	
Grenville and Augmentation	Thos. Ross & Son	1	
" "	J. Arnold	1	
" "	Isaie Legris	1	
Harrington	Thos. Ross & Son	2	
Mille Isles	Thos. Ross & Son	2	
Morin	Albert Kempton		1
St. André	W. J. Morrow	2	1
"	Thos. Ross & Son	1	
St. Jerusalem	Thos. Ross & Son	4	
"	W. J. Morrow	1	
"	Syndicate of Farmers	1	
	Total	31	3

ARTHABASKA.

Chénier	Zéphrin Genest	1	
"	Philias Laroche	1	
"	Xavier Moreau	1	
"	Anselme Caron	1	

ARTHABASKA.—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	Cheeseries.	Creameries.
Stanfold	H. Provencher	1	
"	Calixte Dionne	1	
"	Georges Blanchet	1	
"	La Cie. de Beurre de Stanfold		1
Tingwick	Farmers Association	1	
Victoriaville	D. O. Bourbeau	1	1
Warwick	David Guillemette	1	
"	Onésime Lupien	1	
"	Nazaire Vidal	1	
"	Dominique Babineau	1	
Warwick (village)	Abdon Méthot	1	
	Total	51	2

BAGOT.

St. André d'Acton	Milton McDonald, M.P.P.	1	1
" "	Société d'Actionnaires	1	
St. Dominique	Norbert Frédette	1	
"	Lambert Sarrasin	1	
"	Harris Brabant	1	
"	Emile Chagnon	1	
"	Fernand Lapalme	1	
St. Ephrem d'Upton	Delphis Chicoine	1	1
" "	Louis Côté	1	
Ste. Hélène	Antoine Sicard	2	1
"	Eusèbe Dufault	1	1
"	Trefflé Lemoine	1	
St. Hugues	L. T. Brodeur	1	

Chénier	Onésiphore Lemay	1	
Chester (East)	Léon Camiré	1	
"	F. X. Moraux	1	
"	Ferdinand Fortier	1	
"	Napoléon Alain	1	
"	Pierre Dumas	1	
Chester (West)	Louis Boulanger	1	
"	Napoléon Fouquette	1	
"	Alfred Roux	1	
"	Xavier Moreau	2	
"	Irenée Bergeron	1	
"	Joseph Leclerc	1	
"	Placide Lehouiller	1	
"	Napoléon Brunet	1	
Ste. Anne du Sault	Adolphe Daveluy	1	
St. Albert de Warwick	Taché & Lefebvre	1	
St. Christophe	Albert Houle	1	
"	Joseph Michel	1	
"	Eugène Pellerin	1	
"	Réal Lavigne	1	
"	Antonio Houle	1	
Ste. Clotilde de Horton	Georges Benoit	1	
Ste. Elizabeth de Warwick	Ed. Desfossés	1	
St. Louis de Blandford	St. Laurent & Co	1	
St. Norbert	Alfred Ouellet	1	
"	David Dumont	1	
St. Rémi de Tingwick	Honorius Grenier	1	
" "	Jos. Adélard Proulx	1	
" "	Edmond Levasseur	1	
Ste. Valère de Bulstrode	Blanchette & St. Laurent	1	
" "	Eusèbe Lupien	1	
" "	Adolphe St. Laurent	1	
" "	Pierre Leduc	1	
Ste. Victorie	Gaudet & Nault	1	
Stanfold	Brisset & Beaudet	1	
"	D. Simoneau	1	
St. Hugues	Cavignac Co	1	
"	D. Lanoie	1	
"	A. Lanoie		1
"	H. St. Martin	1	
St. Liboire	Joseph Lemonde	1	1
"	Lajoie & Sons	1	
"	Simon Touchette	1	
St. Pie	J. B. Racine	1	
"	Hector Lapalme	1	
"	Cléophas Vadnais	1	
"	Alphonse Morin	1	
Ste. Rosalie	Jos. B. Grenier	1	
"	Frs. Lemond	1	1
St. Simon	Azarie Deslauriers	1	
"	Paul L'Heureux	1	
"	Joseph Lemonde	1	
St. Théodore	Isidore Jodoin	1	
"	Joseph Bousquet	1	
"	Joseph Beauregard	1	1
"	J. H. Houle	1	
"	Hilaire Roi	1	
Upton	Jean Maurice	1	1
"	Solas Lapalme	1	1
	Total	36	9

BEAUCE.

Adstock North	P. Raucourt & Co	1	
"	Vital Nadeau & Co	1	
Aubert Gallion	Joseph Thibodeau	1	
"	John Goslin	1	
"	Philémon Poulin	1	
"	Joseph Veilleux	1	
"	Joseph Maheux	1	
"	Joseph Paquet	1	
"	Benoni Poulin	1	

BEAUCE.—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Adstock (North)	Pierre Morin	1	
"	Joseph Boldue	1	
"	P. G. Gonthier		1
Aylmer	Nap. Beaudoin	1	
"	M. Masse	1	
Broughton	Vital Champagne	1	
"	Thomas Roy	1	
"	Etienne Grégoire	2	
"	Champagne Grégoire	1	
"	Filion	1	
Gayhurst	R. Dallaire	1	
"	Gilbert Dallaire	1	
Lambton	C. B. Lavigne	1	
"	St. Hilaire & Bro.(8th range)	1	
"	St. Hilaire & Bro. (Price)	1	
"	J. E. Roberge		1
Metgermette (North)	Société d'Actionnaires	1	
Saints Anges	Plante & Giguère	1	
"	Turmel & Co	1	
St. Côme de Kennebec	Irénee Belanger	1	
" "	Pierre Roberge	1	
St. Elzéar	Apollinaire Drouin	1	
"	Philéas Gagnon	2	
"	Marcelin Grégoire	1	
St. Ephrem de Tring	Octave Roy	1	
"	Olivier Poulin	1	
"	Bisson & Co	1	
"	Marcoux & Co	1	
"	N. Pomerleau & Co	1	

BEAUCE.—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Ste. Marie	Avard & Grégoire	1	
"	Marcoux Jolicœur	2	
"	Marcoux & Co.	1	
"	Jean Faucher	1	
"	Vital Cliche	1	
"	Cie. de Matériel de Laiterie.		2
St. Pierre de Broughton	Alfred Gagné	2	
St. Samuel	Gilbert Dallaire	1	
"	Romain Dallaire	1	
St. Sévérin	Germain Plante	1	
"	Nazaire Drouin	1	
"	Samuel Laliberte	1	
St. Victor de Tring	A. Boucher & Co	1	
"	Cie. de Matériel de Laiterie.		1
"	N. Mercier	1	
"	F. X. Plante & Co	2	
"	N. Beaudoin & Co	1	
"	N. Croteau & Co	1	
"	M. Brodrique & Co	1	
Shenley	B. Tanguay & Co	1	
"	Louis Fortier	1	
"	L. O. Lavigne	1	
"	Jos. O. Nadeau & Co	1	
"	Nap. Beaudoin		1
Shenley Dorset	Société Bernard, Poulin & al.	1	
"	J. E. Pelletier	1	
	Total	99	9

"	"	Cie de Matériel de Laiteri..	2
"	"	Pagé, Lacombe & Co.	1
St. Evariste de Forsyth		Joseph Lachance	1
"	"	Aimé Lachance	1
"	"	Joseph Labonté et al	1
"	"	Theéodore Lahay	1
"	"	Cyrille Bourque	1
"	"	Cyrille Francœur	1
St. François		Philias Veilleux	1
"		Alphonse Doyon	1
"		Auguste Jolicœur	1
"		Jean Doyon	1
"		M. Gendron	1
"		Chs. Busque	1
"		Jean Denis	1
"		H. Tétro	1
"		Charles Denis	1
"		Joseph Bureau	1
"		Chs. Poulin	1
"		Gédéon Doyon	1
St. Frédéric		F. X. Plante	2
"		Hilaire Gilbert	1
"		Joseph Vachon	1
"		G. Lagueux	1
"		Magloire Gravel	1
"		Joseph Jacques	1
"		Norbert Plante	1
"		Pierre Gagnon	1
St. Joseph		Nöel Roy	1
"		Vital Roy	1
"		Augustin Jacques	1
"		Séraphin Roy	1
"		Thomas Doyon	1
"		Omer Giguère	1
"		Evariste Poulin	1
St. Joseph (village)		Jos. Morin & Co.	1

BEAUHARNOIS.

Salaberry de Valleyfield		Joseph H. Roy	1
Ste. Cécile	"	Joseph Poirier	1
"	"	J. A. Clement	1
St. Clément		Jos. Roy	1
"		Jérémie Gendron & Co.	1
"		Jos. Crevier	1
St. Etienne		Laberge & Sauvé	1
"		Jérémie Brosseau	1
St. Louis de Gonzague		Chas. Tait	1
"		John Thompson	1
"		George Gardner	1
"		James Lyman	1
"		Alexis Lemieux	1
"		Victor Pilon	1
"		Hormidas Lepage	1
St. Timothée		J. A. Clément	2 1
"		Auguste Crevier	1
"		Joseph Ringuet	1
		Total	18 2

BELLECHASSE.

Beaumont		Napoléon Beaudoin	1
N. D. Auxiliatrice de Buck		Pitre Fortier & Co	1
Roux Daaquam		Compagnie de Cultivateurs.	1
St. Cajetan d'Armagh		S. B. Dionne & Co	1
"		Lapierre & Co.	1
"		Chrys. Roy & Co	1
St. Charles		Onésime Mercier	1
St. Damien de Buckland		M. Lessard	1
St. Gervais et St. Protais		Philibert Tanguay	1
"	"	Pierre Fortin	1
St. Nérée		Philibert Langlois	1
"		François Breton	1

BELLECHASSE.—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Philémon	Nap. Delagrave	1	
"	Frs. Larochelle & Co.		1
St. Michel	Arsène Roy		1
"	H. A. Furoy		1
St. Lazare	Guillaume Chabot	1	
"	Fred Laflamme		1
St. Raphaël	Georges Roy	1	
"	H. Langlois & Co	2	
"	Philias Gonthier		1
St. Vallier	Horrace Corriveau	1	
	Total	12	11

BERTHIER.

Berthier	Hormidas Brunet	1	1
"	Octavien Tellier	1	
"	Joseph Frenet & Co	1	
La Visitation, Ile Dupas	Alfred Plante	1	
" "	Thomas Sylvestre	1	
St. Antoine de Lavaltrie	Joseph Chenevert	1	1
" "	Ed. Mousseau & Sons	1	
" "	Jos. Robitaille	1	
St. Barthélemy	Rouleau, Comtois & Co	1	1
"	Edouard Trudel	1	1
"	Urgèle Lécuyer	1	1
"	F. X. Mayer	1	
"	Olivier Brunette	1	
St. Cuthbert	Joachim Grégoire	1	
"	Dame Antoine Robert	1	

BROME.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Bolton (East)	George Salls	1	
"	Morah Scott	1	
"	Joseph Labelle	1	
"	Wilfrid A. Randall	1	
"	Ludger Bachand	1	
Brome	R. J. Ladd	1	
"	G. A. Miller	1	
"	Jesse Benham	1	
"	Fred. Young	1	
"	Hiram Woodard	1	
"	Arthur Crittenden	1	
"	Elmore Grimes	1	
"	W. Sheldon	1	
"	M. Boyer	1	
"	G. A. Robb		1
"	M. E. Roy	1	
"	Jos. Duquette		1
"	Ephraim Lapierre		1
"	West Brome Creamery		1
Eastman	A. J. Whitehead	1	
Farnham (East)	Alphonse Boright	1	
"	Thomas Burnet	1	
"	F. Alex. Hawk	1	
"	John Enright	1	
"	C. Jewell	1	
"	Philéas Domingue		1
"	J. & F. Daniel		1
Knowlton	George Gingras	1	
Potton	Samuel S. Elkins	1	
"	Alden Bailey	1	

"	Isaïe Fournier	1	
"	Jos. Fournier	1	
"	Jos. Lacourse	1	
"	Louis Marchand	1	
"	Ulric Courchéne		1
St. Damien	Réné Charbonneau	1	
"	Joseph Beaudoin	1	
St. Gabriel de Brandon (paroisse)	George Dubeau	1	
St. Gabriel de Brandon (paroisse)	Edwin Remington	1	
St. Gabriel de Brandon (paroisse)	Joseph Beaudoin	1	
St. Gabriel de Brandon (paroisse)	Honoré Dauphinais	1	
St. Gabriel de Brandon (village)	Louis Jacques	1	
St. Joseph de Lanoraie	Arthur Ferland	1	
" "	Docité Bonin	1	
St. Michel des Saints	Alexandre Menard	1	
St. Norbert	Sévérin Denis	1	
"	Areliste Dutrou	1	1
"	Joseph Ayot	1	
"	David Fréchette	1	
	Total	33	7

BONAVENTURE.

Maria	Rvd. Jacob Gagné	1	
New Richmond	Compagnie de Cultivateurs.	1	
Port Daniel Ouest	Sociétés de Patrons, Rvd. Aug. Gagnon, manager	1	
Shoolbred	Ernest Allard	1	
	Total	4	

"	Jos. Labelle	1	
"	Siméon Sargeant	1	
"	Orm. W. Bailey	1	
Sutton	W. McFarlane	1	
"	W. A. Wells	1	
"	Eph. Charbonneau	1	
"	N. Newton	1	
"	Casper Willey	1	
"	A. Esty	1	
"	Leonard	1	
"	H. O. Wales	1	
"	Cheese & Butter Sutton Ass.	1	1
	Total	36	7

CHAMBLY.

St. Bazile le Grand	Laporte Norbert	1	
St. Bruno	J. O. Champeau	1	
Ste. Famillo de Boucherville	Avila Trudeau	1	
St. Hubert	A. Trudeau	1	
"	A. Champeau	1	
"	M. Brosseau	1	
"	M. Trudeau	1	
"	Cie. de Beurrerie de St. Hubert		1
St. Joseph de Chambly	M. Monat	1	
	Total	8	1

CHAMPLAIN.

M. D. du Mont Carmel	Luc Ducharme	1	
" "	Philippe Rhéault	1	
" "	Jos. Cossette & Lord	1	
La Visitation de Champlain	Joseph Félix	1	
" "	Zephirin Doutigny	1	

CHAMPLAIN.—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Adelphe	A. Lambert	1	
"	P. N. Chailly	1	
Ste. Anne de la Pérade	N. E. Clément	1	
"	Gilbert Latour		1
"	Michel Loranger	1	
"	Honoré Gendron	1	
"	Joseph Godin	1	
"	Donald Foley	1	
"	Edouard Danville	1	
"	Déodon Lanouette	1	
Ste. Flore	Benjamin Lavergne	1	
"	Uldéric Leblanc	1	
"	Hilaire Lupien	1	
"	Narcisse Beaulieu	1	
St. F. X. de Batiscan	Ovide Lacourcière	1	
"	Ludger Duval	1	
"	Charles Gouin	1	
"	Réné Lapointe	1	
St. Jacques des Piles	Joseph Donat	1	
St. Luc	Anselme Beaudoin	1	
"	J. Olivier Beaudoin	1	
"	J. Jacques Beaudoin	1	
"	Hubert Nobert	1	
"	Georges Goyette	1	
"	Pierre Marchand	1	
St. Marie du Cap de la Madeleine	H. Vaillancourt	1	
St. Maurice	F. X. Blondin	1	
"	Théophile Decoteau	1	
"	Irénée Racine	1	

CHARLEVOIX.—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Ste. Agnés de Murray Bay	Trefflé Bergeron	1	
" "	Thomas Bouchard	1	
" "	Joseph Bergeron	1	
" "	Boniface Desgagné	1	
St. Etienne de la Malbaie	Jules Bradet	1	
" "	Odilon Pilot	1	
St. Fidèle Mount Murray	Antoine Perron	1	
St. Irénée	Ferdinand Gauthier	1	
"	Denis Boucher	1	
St. Ls. de l'Ile aux Coudres	Georges Tremblay	1	
" "	Louis Perron	1	
Baie St. Paul	Napoléon Potvin	1	
"	Joseph Simard	1	
"	Benjamin Fortin	1	
"	Charles Martel		1
"	Wilfrid Simard	1	
"	Henri Côté	1	
"	Gédéon Perron	1	
St. Siméon	Société de fabrication de fromage	1	
St. Urbain	Charles Fortin	1	
Settrington (St. Hilarion)	Evariste Demeules	1	
	Total	24	1

CHATEAUGUAY.

Ormstown Village	Macpherson & Ferguson		1
Très St. Sacrement	John McGregor	1	
"	Robert Anderson	1	
"	Macpherson & Ferguson	1	

"	Antoine Laprise	1	
"	Maxime Cossette	1	
"	Oscar Norbert	1	
St. Narcisse	Trefflé Trudel	1	
"	Isidore Derouin	1	
"	Dosithé Cossette	1	
"	Benjamin Bélanger	2	
"	François Cossette	1	
St. Prosper	Alfred Trudel	1	
"	Cloutier & Lacoursière	1	
"	William Lacoursière	1	
St. Sévérin de Proulxville	Narcisse Bordeleau	1	
" "	Marjorique Bordeleau	1	
" "	Eli Mongrain	1	
" "	Trefflé Veillet	1	
St. Thècle	Alfred Trudel	1	
"	Charles Audy	1	
St. Tite	J. Aristide Lambert	1	
"	Paquin & Jacob	1	
"	François Marchand	1	
"	Martial Massicotte	1	
"	Jacob Lacoursière	2	
"	Théodore Maureault	1	
"	Zotique Allaire	1	
St. Stanislas	Alfred Trudel	1	
"	Ovide M. Trudel	1	
"	Joseph Jacob	1	
"	Jean Jacob	1	
Total		63	1

CHARLEVOIX.

Les Eboulements	Médéric Bouchard	1	
"	Alexis Tremblay	1	
"	Charles Tremblay	1	
"	John Thompson	1	
"	Allan's Corners Co.	1	
St. Antoine Abbé	James McGill		1
Ste. Clotilde	Edward McGowan	1	
St. Jean Chrysostome	Macpherson & Ferguson	2	
"	John Boyd		1
"	Maxime Huberdeau		1
St. Joachim de Chateauguay	N. R. Laberge	1	
St. Malachie d'Ormstown	Wm. Graham	1	
" "	Wm. Collum	1	
" "	Edwin Hooker	1	
" "	James Sangster	1	
" "	Co. of farmers	1	
Ste. Martine	Ed. McGowan	2	
"	Etienne Marleau	2	
Ste. Philomène	Ed. McGowan	1	
"	Jean-B. Damour	1	
St. Urbain Premier	Jos. A. Défayette	1	
"	Ed. McGowan	1	
Total		22	4

CHICOUTIMI.

Bagotville	Elie Tremblay	1	
"	Firmin Paradis	1	1
"	Didyme Bouchard	1	
"	Wilfrid Côté	1	
Bourget	Alex. Larouche	1	
"	Louis Gaudin	1	
Chicoutimi Canton	Algérie Maltais	1	
"	David Maltais	1	
"	Elie Fortin	1	
"	Edmond Tremblay	1	
"	Frs. Brassard	1	
"	Louis Guay	1	

CHICOUTIMI—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Chicoutimi Canton	Jean Girard	1	
"	Richard Gagnon	1	
"	Eugène Guay	1	
"	Jean Perron	1	1
"	Frs. Maltais	1	1
Chicoutimi Ville	L. E. Guay	1	
Grande Baie	Société de Fabrication de Beurre et de Fromage	1	1
"	Jules Gauthier	1	1
N. D. de Laterrière	Thomas Tremblay	1	
"	Alfred Tremblay	1	
"	J. A. Gaudreault	1	
St. Cyriac	Suzanne Vaillancourt	1	
St. Dominique de Jonq	Michel Bergeron	1	
"	Néré Bergeron	1	
"	Xavier Gagnon	1	
"	Charles Fortin	1	
"	Donat Brassard	1	1
St. Fulgence	Joseph Harvey	1	
St. Jean	Zéph. Desgagnés and others.	1	
Tremblay	Louis Bouchard	1	
"	Xavier Savard	1	
"	Eugène Guay	1	
"	Honoré Côté	1	
"	Joseph Bouchard	1	
"	Ernest Gravel	1	
"	Ovide Villeneuve	1	
	Total	38	6

DORCHESTER—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Ste. Claire	Clotaire Lessard	1	
"	Daigle	1	
St. Edouard de Frampton	J. B. Blais	1	
"	Joseph Lacasse	1	
"	Nap. Dion	1	
"	Roy & Dubuc	1	
"	James Ghinsella	1	
"	Thomas Audet	1	
St. Germain, Lake Etchemin	Société de Fabrication de Fromage	1	
" "	Michel Larochelle	1	
Ste. Hénédine	Octave Martineau	1	
"	Joseph Cloutier	1	
"	Gabriel Dumont	1	
St. Isidore	George Carrier	1	
"	Joseph Leblanc	1	
"	Cie. de Matériel de Laiterie		2
Ste. Justine	Syndicat No.1(F. Fortier,scy)	1	
"	Philéas Tanguay	1	
St. Léon de Standon	Pierre Chouinard	1	
Ste. Marguerite	N. Beaudoin	1	
"	David Cloutier	1	
"	Victorien Trachy	1	
"	Joseph Maure	1	
St. Odilon de Cranbourne	Veilleux & Co.	1	
"	Jean Faucher	1	
Watford (West)	David Grenier	1	
	Total	31	4

COMPTON.

Auckland	Joseph Roy and others	3	
Bury	N. St. François	1	
Cookshire	R. H. Pope, M. P.		1
Ditton & Clinton	Joseph Brillon	1	
Eaton	John McKie	1	
"	Hanley	1	
"	Lafontaine	1	
Emberton	Rvd. A. Tremblay	1	
Hereford	Cie de Paquetteville	1	
"	Chouinard & Bissonnette	1	
"	Mm. Melrose	1	
"	A. Gérin	1	
"	Philippe Dupuis	1	
"	Frontier Manufacturing Co.	1	
Lingwick	J. Fontaine	1	
"	J. L. Pinchaud		1
Marston South	Napoléon Lemieux	1	
Sawyerville	Sawyerville Creamery		1
Scotstown	James Coleman & al		1
Waterville	Association of Patrons	1	
Westbury	Jos. Fontaine	1	
Winslow North	Cyrille Bourque	1	
Winslow South	Peter Matheson	1	
	Total	21	4

DORCHESTER.

St. Anselme	L. N. Beaudoin	1	
"	Amédée Grégoire	1	
"	Jos. Baillargeon	1	
St. Bernard	Charles Beliveau	2	
"	Cie. de Matériel de Laiterie		1
Ste. Claire	Georges Richard	1	
"	Alphonse Bernier	1	

DRUMMOND.

Durham	Jos. A. Dunkerly	1	
"	M. Duguay	1	
Durham (South)	Albert Hyde	1	
"	Ulféry Mongeau	1	
"	J. B. J. Préfontaine		1
Grantham	Jos. Jones	1	
"	Zotique Lafond	1	
"	Adélard Lavoix	1	
Kingsey	Joseph Lefebvre	1	
"	Lefebvre & Painchaud	1	
"	Lefebvre & Co	1	
"	Georges Benoit	1	
"	Société de Patrons	1	
Kingsey Falls	Rvd. G. E. Caron	1	
"	McCallum Co		1
L'Avenir	Hylas Duguay	1	
"	Duguay & Co	1	
"	N. Martel	1	
"	Alex. Charpentier	1	
"	Ephrem Charpentier	1	
"	Joseph Dionne	1	
St. Eugène de Grantham	Chas. Cyr and others	1	
St. Germain de Grantham	Olivier Lemaire	1	1
"	Olivier Rageotte	1	
"	Joseph Moreau	1	
"	Adelard Lavoie	1	
"	Michel Gauthier	1	
Wendower et Simpson	Chas Cyr	2	1
"	Napoléon Raymond	1	
"	Edmond Dauplaise	1	
"	Paul Valois	1	
"	Théophile Caron	1	
Wickham (East)	A. Provancher	1	
"	Leon Ball	1	
Wickham (West)	Jos. Lafrance	1	
	Total	34	4

GASPÉ.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Ste. Anne des Monts	Frs. Lepage	1	
St. Norbert du Cap Chat	Gustave Roy	1	
"	George Roy	1	
	Total	3	

HOCHELAGA.

Rivière des Prairies	Alfred Vézina	1	
St. Leonard de Port Maurice	John McIntosh	1	
	Total	2	

HUNTINGDON.

Dundee	Macpherson & Ferguson	1	
"	D. M. Macpherson	2	
Elgin	Macpherson & Ferguson	2	
"	Macpherson	1	
"	James Irwin & Co	1	
"	Smaill Bros		1
Godmanchester	Macpherson & Ferguson	5	
"	W. H. Walker	1	
"	Syndicate of Farmers	1	
Havelock	Maxime Patenaud		1
"	N. Beaudin		1
"	G. Gembie		1
Hemmingford	Thomas Boyd		2
Hinchinbroke	Farquhar & Oliver	1	
"	George Loomis	3	
"	Martin Connell	1	

JACQUES-CARTIER—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Geneviève	Ambroise Pilon	1	
Ste. Geneviève (Village)	J. B. Meloche		1
St. Joachim de la Pte. Claire	Daniel Legault	1	1
St. Laurent	Pierre Meloche		1
St. Raphaël de l'Ile Bizard	Napoléon Boivin		1
	Total	2	8

JOLIETTE.

St. Alphonse Rodriguez	G. E. Trudeau	1	
"	R. Gervais	1	
Joliette	La Fromagerie de Joliette	1	
St. Ambroise de Kildare	Sinai Comtois and others	1	
"	Anatole Archambault	1	
"	Marcel Ethier		1
Ste. Béatrice	Onésime Boucher	1	
"	Joseph Laurent	1	
"	Alfred Laporte	1	
"	Théodore Beaudry	1	
St. Charles Borromée	U. B. Desrochers	1	
"	Jos. Arnault	1	
St. Côme	Lacasse & Labine	1	
"	O. Gauthier	1	
Ste. Elizabeth	Alexandre H. Beaulieu	1	
"	Hormisdas Dudemaine	1	
"	Wilfrid Gingras	1	
"	Noé Roy	1	
"	Trudel & Gingras	1	
St. Felix de Valois	J. L. Coutu	1	
"	L. Boucher	1	

"	J. D. McDonald	1	
"	Macpherson & Co	3	
"	Miller & Boyd		1
Huntingdon	Comb. Butter and Cheese Factory	1	1
St. Anicet	Masson & Cassa	1	
"	D. M. Macpherson	4	
"	Club of Farmers	1	
"	James Irwine	1	
Ste. Barbe	Elie Filiatrault and others	1	
	Total	32	8

IBERVILLE.

St. Alexandre	Ambroise Labrecque, jr	1	
Ste. Anne de Sabrevois	S. J. Roy		1
St. Athanase	Ambroise Poirier	1	
"	Donat Boucher	1	
St. Brigide	Godefroy Tessier	1	
"	Osias Archambault	1	
St. Georges de Henryville	Gompagnie de Cultivateurs	1	
"	Léon Bénard & Co	2	
St. Grégoire	Michel Monat	1	
"	Thomas Barrière	1	
"	Napoléon Pratte	1	
"	Narcisse Larivière	1	
St. Sébastien	Pierre Brault, jr	1	1
"	Elie Dagesse	1	
	Total	14	2

JACQUES-CARTIER.

Ste. Anne du Bout de l'Isle	Télesphore Madore		1
St. Geneviève	Urgel Lauzon	1	1
"	J. Bte. Malocche		1
"	Geo. Asselin	1	
"	Eugène Boucher	1	
"	J. Gravelle	1	
Ste. Mélanie	Joseph Clément	1	
"	Désiré Nadeau	1	
"	Zacharie Lepage	1	
St. Paul de Lavaltrie	Adolphe Gingras	2	
"	Joseph Marsan	1	
"	Joseph Ratelle	1	
St. Thomas de Jersey Nord	Masse & Desrochers	1	
"	Fréderic Goyette	1	
"	Maxime Coutu		1
Ste. Emélie de l'Energie	Charles Blaise	1	
"	Joseph Coutu	1	
"	Onésime Beaudry	1	
"	Moise Beaulieu	1	
"	Joseph Desrochers	1	
	Total	37	2

KAMOURAŞKA.

N. D. de la Rivière Ouelle	J. A. Pelletier	1	
N. D. du Mont Carmel	Charles Roy & al	1	
Kamouraska Village	W. LeBel	1	
St. Alexandre	J. S. Dugal	2	
"	Alexis Bélanger	1	
St. André	Desjardins & Marquis	1	
"	Carrier & Michaud	1	
Ste. Anne de Lapocatière	Francois Gendron	1	
"	Joseph Boucher	1	
St. Denis	Augustin Dionne	1	
St. Onésime d'Irworth	E. Levesque	1	
St. Germain	Etienne Caron	2	
"	Louis Levesque	1	
St. Pacôme	Pierre Levesque	1	
"	Thomas Levesque & al	1	1

KAMOURASKA.—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Paschal	Compagnie d'Actionnaires	1	
St. Philiphe de Néri	Louis Anctil & al	1	
	Total	19	1

LAKE ST. JOHN.

Delisle	François Gagné	1	
Hébertville Parish	Philippe Hudon	1	
"	Servulle Tremblay	1	
"	Robert Lemay	1	1
"	Yves Tremblay	1	
Hébertville Village	Philippe E. Hudon	1	1
Normandin	Alfred Trudelle	1	
Roberval Village	Luc Lizotte	1	
St. Bruno	J. E. Desbiens	1	
St. Fèlicien	Alber Nault	1	
"	Adélard Perron	1	
St. Gédéon	Jos. Girard, M.P.P.	1	
"	André Bouchard	1	
St. Jérôme du L. St. J.	George Perron	2	
St. Jérôme du L. St. J.	Octave Hudon	1	
"	Charles Simard	1	
"	Eli Gagné	1	
"	Joseph Gagnon	1	
St. Louis de Metabetchouan	Octave François	1	
Ste. Methode	Patrice Levesque	1	
St. Prime	Adélard Perron	1	
"	Frs. Côté and others	1	
	Total	23	2

LAVAL.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Ste. Dorothée	Ph. D. Laurin	1	
St. François de Salles	Onésime Veillel	1	
"	Delvica Adam	1	
St. Martin	Allard & Côté	2	
Ste. Rose de Lima	Aristice Cloutier	1	
"	Gilbert Couvrette	1	
"	Cossette & Archambault		1
Ste. Rose Village	Archambault & Cossette		1
	Total	7	2

LEVIS.

Ste. Etienne de Lauzon	Victor Plante	1	
St. Henri de Lauzon	Adolphe Fortier	2	
"	L. N. Beaudoin	1	
"	André Beaudoin		1
St. Jean Chrysostome	Jos. Morneau	1	
St. Lambert	Jos. Paquet	1	
"	Cie. de Matériel de Laiterie		1
St. Nicholas	Alphonse Bergeron	1	
"	J. L. Lambert	1	
"	François Fouquet	1	
"	Charles Filteau	1	
	Total	10	2

L'ISLET.

L'Islet	L. A. Boucher		1
"	Onésiphore Charbonneau		1

LAPRAIRIE.

Laprairie de la Madeleine	Eusèbe Martel	1	
St. Constant	Joseph Fyfe		1
St. Isidore	Ed. McGowan	1	
St. Isidore	J. L. R. Pagé		1
St. Jacques le Mineur	Philias Demers and others	1	
St. Philippe	Léeandre Gobeil	1	
	Total	4	2

L'ASSOMPTION.

L'Assomption (town)	Georges Dubeau	1	
"	A. Chevalier	1	
"	Forest & Longpré		1
"	Felix Suzor		1
L'Assomption	Collège de l'Assomption		1
Laurentides	Ed. Desmarais		1
L'Epiphanie	Jos. Moran		1
"	A. Lord		1
Repentigny	Jos. N. Thouin	1	
St. Charles de Lachenaie	François Allard	1	
St. Henri de Mascouche	Samuel Chagnon	1	
"	Victor Lalumière		1
"	Alph. Soucisse		1
"	Louis Lamoureux		1
"	Louis Morin		1
St. Lin	Théodule Corbeille		1
St. Paul l'Ermite	Philias Leveillé	1	
"	Samuel Chagnon		1
St. Roch de l'Achigan	Jos. Delongchamps		1
"	Médéric St. André		1
St. Sulpice	Arthur Chicoine		1
	Total	6	15
"	Eustache Ménard		1
"	Cyrias Houle		1
St. Aubert	Syndicate de Cultivateurs		1
St. Cyrille de Lessard	Désiré Mercier	1	
St. Jean Port Joli	Edouard Vaillancourt	1	
St. Jean Port Joli	Jean Baptiste St. Pierre	1	
Ste. Louise des Aulnaies	Nazaire Caron	1	
"	J. Théberge	1	
St. Pamphile	Syndicate de St. Pamphile		1
St. Roch des Aulnaies	Auguste Pelletier	1	1
"	Dolard Gendron	1	
	Total	7	7

LOTBINIERE.

Deschaillons	Joseph Dubuc	1	
"	Arthur Paris	1	
"	Victor Chandonnet	1	
"	Edouard Barabé		1
St. Agapit	Alphonse Desrochers	1	
"	Arthur Tremblay		1
Ste. Agathe	Octave Boulanger		1
St. Antoine de Tilly	Félix Lambert	2	
"	Alphonse Bergeron	1	
"	Guillaume Laroche	2	
"	Alphée Aubin	2	
St. Apollinaire	Ferdinand Fortier	1	
"	Alphée Aubin	1	
Ste. Croix	Edouard Cayer & Lalibert6	1	
"	Aimé Paré	1	
"	Joseph Croteau	1	
"	Rinfret & Co	2	
St. Edouard	Ferdinand Coulombe	1	
"	Théophile Daigle	1	
"	Edmond Daigle	1	

LOTBINIERE.—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
"	Edouard Coulombe	1	
Ste. Emélie	Damase Beaudet	1	
"	Adjutor Doré	1	
St. Flavien	Lazare Bédard	1	
"	L. O. Pratte	1	
"	Alex. Daigle	1	
St. Giles de Beaurivage	Nazaire Demers	1	
St. Louis de Lotbinière	Adelard Plaisance	1	
"	Laurent Hamel	1	
"	Societé de Fabrication de St. Louis	1	1
"	Wilfrid Vézina		1
St. Narcisse de Beaurivage	Didace Kirouac	1	
"	Joseph Lefebvre	1	
St. Patrice de Beaurivage	Joseph Olivier	1	
"	Olivier Fecteau	1	
"	Morin & Croteau	1	
St. Sylvestre de Beaurivage	Joseph Grégoire	3	
"	W. M. H. King	1	
"	Samuel Neil	1	
"	M. Morin	1	
"	Payeur et Bisson	1	1
	Total	41	6

MASKINONGE.

Hunterston	Henri Bergeron	1	
Louiseville	Adrien Milot		1
St. Alexis	Joseph Allard	1	
"	Henri Bergeron	1	

MEGANTIC.—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Halifax (North)	Johny Grégoire	1	
"	Champagne Leclerc	1	
"	V. C. Pélerin	1	
"	Joseph Boucher	1	
Halifax (South)	Oscar Gilbert	1	
"	Thibault & Boucher	1	
"	Beaudoin & Provencher	1	
"	Léopold Sévigny	1	
"	Nollet & Marion	1	
"	B. Pelletier	1	
"	Gilbert & Gilbert	2	
"	Bergeron & Massé	1	
"	Wilfrid Gilbert & Massé	1	
Inverness	John L. Cox	3	
"	Thos. Davidson and others	1	
"	Aversus Beland	1	
Ireland	Gilbert & Massé	1	
"	Jos. O. Roy	1	
"	Basile Tanguay	1	
"	L. A. Klein		1
Ireland (North)	Louis Gilbert	1	
"	Mercier & Co	1	
"	J. B. Beaudoin	1	
Leeds	J. A. McCallum	3	
"	Robert Anderson		1
Leeds (East)	Alfred Gagné	2	
Plessisville	Cie. de fromage et de beurre	1	1
Ste. Anastasie de Nelson	Delphis St. Laurent	1	
"	Thos. Baril	1	
"	Ed. Roger	1	

St. Antoine de la R. du Loup	Hector Caron	1	
"	Vve. Edouard Paquin	1	
"	Adrien Milot		1
St. Didace	Alfred Morin	1	
"	Henry Bergeron	1	
"	Denis Barette	1	
"	Thos. Rivard	2	
"	Jos. Jolette	1	
St. Joseph de Maskinongé	Clément Dauplaise	1	
"	Victor Sicard	1	
"	Antoine Saucier		1
St. Justin	Pierre Brail	1	1
"	Adolphe Ladouceur	1	
"	Jos. Bussière	1	
St. Léon le Grand	F. X. Dionne	1	
"	Samuel Lefrançois	1	
"	A. Lessard	1	
"	L. Milot	1	1
"	W. Ferron	1	
"	Rey. Caron & Co	1	1
"	Paul Boisvert	1	
St. Paulin	Henri Bergeron	2	1
St. Ursule	Lessard & Bastien	1	1
"	Samuel Boucher	1	
"	Henri Lessard	1	
"	Norbert Fleury	1	
"	Henri & F. Grenier	1	
"	Adolphe Lessard	1	
"	Isaac Fournier	1	
	Total	32	8

MEGANTIC.

Halifax (North)	W. C. Beliveau	1	
"	F. Naudeau	1	
"	Joseph Gaudrault	1	
St. Pierre Baptiste	David Simoneau	1	
"	Louis Thibault	2	
Somerset (North)	Drouin, Jutras and others	3	
"	Napoléon Bourassa	1	
"	Gatien Roy	1	
Somerset (South)	A. Morin	1	
"	E. Simoneau	1	
"	Ans. Carrier	1	
Thetford (North)	Georges Filion	1	
"	J. O. Hebert	1	
"	Raymond Beaudoin	1	
"	Louis Chateauneuf	1	
"	Leopold Sévigny	1	
	Total	53	3

MISSISQUOI.

Bedford	Andrew Wilson	1	
"	Lalime Larocque	2	
Cowansville	George Hulburd	1	1
Dunham	J. G. Wales	1	
"	W. Perkins	1	
"	E. O. Hutchins	1	
"	S. J. Ingalls	1	
"	E. A. Russels	1	
"	Nap. Girard	1	
"	A. C. Carter	1	
"	J. Labombarde	1	
Dunham (Village)	Jos. L. Gilbert	1	
Farnham	Guy Kennedy	1	
Farnham (West)	William Tilson	1	
"	Sidney Kempt	1	
"	Edwin Welch	1	
"	Ed. Arpin	1	
"	Amédée Ferland	1	

MISSISQUOI.—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Frelighsburg	Thos. Morrison	1	1
N. D. des A. de Stanbridge	A. Marois	1	
"	A. Courtemanch	1	
N. D. de Stanbridge	Aug. Morin & Sons	1	
St. Armand East	Thos. Morrison	1	1
"	Enoch H. Spoor	1	
St. Armand West	James Rosenberger	1	
"	Sam. Hamel	1	
"	Wilson & McQuinn		1
St. Georges de Clarenceville	Henry O'Clair	1	
"	C. M. Harvey	1	
St. Ignac de Stanbridge	Robert McKie	1	
"	Jered Hawk	1	
"	Ernest Russel	1	
St. Thomas de Foucault	Henry O'Clair	1	
Stanbridge	Jered Hawk	1	
Stanbridge Station	Julien Campbell	1	
"	Joseph Campbell	1	
	Total	36	5

MONTCALM.

Chertsey	Alexandre Rivet	1	
"	Octave Sylvestre & al	1	
Kilkenney	Xavier Sauroil	1	
Rawdon	John Lane	1	
"	Sinaï Bordeleau	1	
"	Magloire Barette	1	
"	Camille Beauséjour	1	

MONTMORENCY—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Ste. Brigitte de Laval	Brisset & Drolet	1	
Ste. Famille	Syndicate de Beurrerie		1
St. Féréol	Syndicate de St. Féréol	1	
St. François	Narcisse Roberge	1	
St. Joachim	Séminaire de Quebec		1
St. Pierre	Lortie & Lachance		1
St. Tite des Caps	Philéas Leblond	1	
	Total	5	6

NAPIERVILLE.

Napierville	Théophile Fortin	1	
St. Cyprien	Fromagerie de Douglasbay	1	
St. Edouard	Sévére Bessette	1	
St. Michel Archange	Joseph Vanchestein		1
"	A. C. Bourdeau		1
St. Patric de Sherrington	James Irwine	1	
"	Soc. du Cultiv., Horm. Béchard, gér	1	
S. Rémi de la Salle	Edward McGowan	1	
"	Chs. Latour & Sons	1	
	Total	6	3

NICOLET.

La Nativité de Bécancourt	Philémon Brassard	1	
"	Achille Carignan	1	
"	Gaspard Côté	1	
Larochelle	Luc Forest	1	1

St. Alexis	Octave Magnan, M.P.P.		1
"	Ernest Laird		1
St. Esprit	Raymond Lesage		1
St. Jacques	Jos. Landry	1	
"	Frédéric Goyette	1	
"	Jos. Nap. Marion		1
Ste. Julienne de Rawdon	Jean Bte. Payan	1	
St. Liguori	G. Brault	1	
"	Joseph Gaudette		1
Ste. Marie Salomé	Ernest Gaudette		1
	Total	11	6

MONTMAGNY.

Berthier	Numa Bernatchez		1
Cap St. Ignace	Ed. Pelletier	1	
"	J. E. Jalbert		1
"	Zeph. Guimont		1
Montmagny	Syndicat No. 1		1
"	Syndicat No. 2		1
Montminy	Théoph. Nicole & Co.	1	
"	Désiré Delagrave & Co.	1	
St. André de l'Ile aux Grues	Georges Roy	2	
St. Pierre, Rivière du Sud	Jacques Collin		1
"	Ed. Boissonneau		1
"	Zephirin Cloutier		1
St. François, Rivière du Sud	Joseph Blais	1	
"	Frs. X. Dagneau		1
	Total	6	9

MONTMORENCY.

Château Richer	Télesphore Rhéaume		1
L'Ange-Gardien	Syndicat de Cultivateurs	1	
"	Elzéar Huot		1
Ste. Anne de Beaupré	Elzéar Fortier		1
Nicolet	Rvd. M. G. Proulx	1	1
Ste. Angèle de Laval	Joseph Hébert	1	
St. Brigitte des Saults	Joseph Lemire	1	
"	Omer Parent	1	
St. Célestien	Cyrille Fournier	1	
"	Grégoire Hébert	1	
"	Philémon Duguay	1	1
"	Ludger Piché	1	
"	George Ellison & al	1	
St. Edouard de Gentilly	Hould & Fournier	3	
"	H. E. Lafontaine	1	
Ste. Eulalie	Luc Thibodeau	1	
"	Joseph Trudel	1	
"	M. St. Pierre	1	
St. Gertrude	F. Ouellette	1	
"	Noé Morissette	2	
"	Eusèbe Hould	1	
"	Narcisse Dorion	1	
"	Joseph Piché	1	
St. Grégoire le Grand	Cyrille Vigneau	1	
"	Gédéon Houle	1	
"	Luc Thibodeau	2	
"	Hubert Dufresne	1	
"	Napoléon Ricard	1	
"	Luc Héon	1	
"	Olivier Hébert	1	
St. Jean Bte. de Nicolet	Nap. Desfossés	1	
"	Baulac & Rosseau	1	
"	Joseph Descoteaux	1	
St. Léonard	Joseph Hébert	1	
"	J. E. Doucet	1	
"	Adolphe St. Laurent	1	
"	Edmond Thibodeau	1	
St. Marie de Blandford	Damase Dubuc	1	
Ste. Monique	Charles Milot	5	
"	Syndicate de fromagerie	1	

NICOLET—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Ste. Monique	Thomas Lafond	1	
"	Cyrille Vigneau	1	
Ste. Perpétue	Luc Girard	1	
"	J. B. Beauchemin	1	
"	Syndicate de Ste. Perpétue	1	
St. Pierre les Becquets	Paul Spénard	1	
"	Noé Mercure	1	
"	Ferdinand Cinq-Mars	1	
"	Arthur Tousignant	1	
St. Samuel	Trudel & Bergeron	1	
St. Silvère	Henri Mailhot	1	
"	Nestor Parent	1	
St. Sophie de Lévrard	Ambroise Tousignant	1	
"	Paul Barabé	1	
"	Damase Dubuc	1	
"	Nazaire Trottier	1	
St. Venceslas	Albert Thibodeau	2	
	Total	66	3

OTTAWA.

Amherst	Robert Racicot	1	
Ayrwin	Gordon & Reid	1	
Buckingham	J. Henwood	2	
"	T. Bonhomme	1	
"	J. Ross	1	
"	M. Duval	1	
Hartwell	N. Leblanc	1	
Hincks	Jos. Lasalle	1	
Hull South	R. & W. Conroy		1

PONTIAC.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Bristol	A. W. McKenzie	1	
Champeau	W. H. Clarke	1	
Clarendon	E. T. Hodgins	1	
"	James Armstrong	1	
"	Thompson Bros	1	
Ile du Calumet	A. G. Clarke	1	
Lichtfield	(Impossible avoir le nom)	1	
Onslow South	A. W. McKechnie	1	
Thorn	John Hodgins	1	
	Total	9	

PORTNEUF.

N. D. des Anges	J. P. Moreau	1	
N. D. de Portneuf	Joseph Ford, jur	1	
"	M. S. Delisle	1	
"	D. Papillon	1	
"	Frs. Marcotte	1	
"	Gédeon Hamelin	1	
"	Narcisse Piche	1	
Pointe aux Trembles	Ant. Larue & Co	1	
"	Philias Hardy	1	
"	Siméon Gingras	1	
"	L. P. Bernard and others		1
St. Alban, Alton	Octave Naud	2	
"	Hubert Perron	1	
"	Jean Savard	1	
St. Augustin	East & Co		1
"	Wilfrid Vézina		1

L'Ange Gardien	Damase Meilleur	5	
L'Annonciation de March...	H. Chartier	1	
Lochaber	Rvd. J. Chatelain	1	
"	W. C. Edwards		1
Lochaber North	P. Lacasse	1	
Lochaber West	McLachlan & Bros	1	
Lochaber West	Jas. Burton	1	
Masham	Aug. Trudel	1	
"	William D. Gibson	1	
Montebello Paroisse	Ferdinand Huneau	1	
Montebello Village	Ferdinand Huneau	1	
N. D. de Bonsecours	Ferdinand Huneau	1	
Ponsonby	Charles Libercent	1	
Portland	Poltimore Cheese Co.	1	
"	Thos. Ross	1	
"	N. D. de la Salette	1	
Ripon	Docteur Aubry	1	
"	Louis Montpellier	1	
"	Louis Quesnel	1	
"	Alfred Prevost	1	
St. André Avelin	Victor Lalonde	1	
"	J. B. Masson	1	
"	Emile Bellisle	1	
"	Hilaire Gareau	1	
Ste. Angélique	T. Bonhomme	2	
"	Paul M. Charbonneau	1	
"	W. E. Robinson	1	
"	H. Pilon	1	
"	W. C. Edwards & Co.	1	1
Suffolk and Addington	R. M. Archambault & Co.	1	
East Templeton	Damase Meilleur	2	
Thurso	Louis Sauvé	1	
Wakefield	Wakefield Cheese Co.	1	
"	William Farrell	1	
Wright	Charles Tremblay	1	
	Total	49	3

St. Bazile	Derome, Frenette and others	1	2
"	Bishop, Pepin and others		1
St. Charles des Grondines	Louis Archambault	2	
St. Casimir	Roch Massicotte	2	
"	J. E. Rivard	1	
"	Amédée Tessier	1	
"	Jos. Perron	1	
"	Alf. Foley	1	
Ste. Catherine de Fossambault	Alf. Vézina	1	
Ste. Famille du Cap Santé	Gabriel Hamel	2	
"	Cie. de Beurrerie, N. Bernard gérant		1
"	W. Vézina		1
St. Gilbert	W. Vézina	1	
Ste. Jeanne de Neuville	Ambroise Bussiére	1	
"	Cie. Beurriére du Cap Santé.	1	
St. J. B. des Ecureuils	Hubert Angers	1	
St. Joseph de Deschambault	Gédéon Laganière	2	
"	Aubert Bédard	2	
"	Francois Pasquin	1	
St. Raymond	Louis Lesage	1	
"	Perron	3	
"	Cie de matériel de laiterie		1
St. Ubalde	A. Trudelle & Bro	3	
	Total	42	9

QUEBEC.

Beauport	James Greggie		1
L'Ancienne Lorette	Syndicat		1
Ste. Foye	Syndicat		1
St. Gabriel de Valcartier	M. M. Rompré	1	
Stoneham et Tewkesbury	Alexandre McKie		1
	Total	1	4

RICHELIEU.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Aimé	Louis Lalancette	1	
"	Esdras St. Germain	2	1
"	Société par actions	1	
Ste. Anne	L. Latraverse and others	1	
St. Joseph	Alexis Gauthier	1	
St. Louis	Antoine St. Martin	1	
"	Odilon Vadeboncœur	1	
"	Louis Guilbault	1	
St. Marcel	Albert Courchesne	1	1
St. Ours	Pierre St. Germain	1	
"	Edouard Durocher	1	
"	Eusébe St. Germain	1	
"	Soc. de fabrication de fromage	1	
St. Ours (Town)	Ambr. Larivière and others	1	
St. Pierre de Sorel	Pierre St. Germain	1	
"	Philippe Duhamel	1	
St. Robert	Jos. P. Paquin	1	
"	Esdras St. Germain	3	
St. Roch	Alexis Collette	1	
Sorel	C. J. C. Wurtele	1	
"	Philippe Duhamel	1	
	Total	25	2

RICHMOND.

Brompton	J. L. Cayouette	1	1
"	Arthur Martel	1	
"	Joseph Pellerin	1	

RIMOUSKI—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Ste. Angèle de Merici	Jos. Ross	1	
"	Victor Thibault	1	
St. Benoit Joseph Labre	Elie Beaupré	1	
Ste. Cécile du Bic	Auber Voyer and others	1	
"	Mathias Morin	1	
St. Damase	Joseph Lamare and others	1	
St. Fabien	Société de cultivateurs	1	1
"	Alfred Belzil & Co		1
Ste. Félicite	Hermd. Gagnon		1
Ste. Flavie de Lapage	Cie de beurrerie		1
St. Gabriel	Etienne Levesque and others	1	
St. Germain, Rimouskiville	Société de fabrication de beurre		1
St. Joseph de Lepage	David Rioux and others	1	
St. Luce de Lessard	Célestin Bélanger	1	
St. Moise	Rvd. E. P. Chouinard	1	
St. Octave de Métis	Ernest Desroziers	1	
"	L. M. Langlois	1	
"	Ph. Mercier		1
St. Pierre du Lac	Rdv. P. Brillant and others	1	
St. Simon	A. A. Nicole		I
St. Valérien	Rvd. J. Amiot	1	
St. Ulric de Matans	Stanislas Thibault		1
	Total	18	11

ROUVILLE.

Marieville	Joseph Archambault	1	
N. D. de Bonsecours	Alfred Lariviére	1	
"	Cie par actions	1	

Danville	G. C. Stockwell	1	
Melbourne et Brompton Gore.	Herbert Armstrong	1	
"	John A. McLeod	1	
"	Herbert S. Burt	1	
"	Gilbert Stalker	1	
"	James Dunbar	1	
"	James McNaugton	1	
"	W. D. Stalker	1	
Richmond	W. Houle	1	
St. Frs. X. de Brompton	Bédard, Lamontagne and others	1	
"	Arnold Lindsay	1	
St. Georges de Windsor	Joseph Lepine	1	
"	Adélard Marcottee	1	
"	Pierre Kirouac	1	
"	Louis Lapointe	1	
Shipton	Jos. Lafrance	2	
"	Alfréd Pard	1	
"	J. de L. Taché	1	
"	Adolphe Parenteau	1	
"	A. McCullum		1
Stoke	Nap. Lemire	1	
"	Frs. Dubreuil	1	
Windsor	Begin, Arpin and others	1	
"	Gregoire, Loitre & Co	1	
	Total	27	1

RIMOUSKI.

MacNider	John Carroll	1	
Matane Paroisse	Stanislas Thibault		1
"	Harrison & Truchon		1
Mont Joli	Joseph Ross	1	
N. D. du Sacré-Cœur	Emile Bélanger		1
St. Anaclet	Arthur Marmen	1	
"	Joseph Ostigny	1	
L'Ange-Gardien	Elie Bourbeau	1	1
"	Jos. Lacoste	1	
"	Evariste Pinsonneau	1	
St. Angéle de Monnoir	Jos. Beauregard	1	
St. Césaire	Isidore St. Pierre	1	
"	Hosmidas Langevin	1	
"	Frédéric Menard	1	
"	Henri Normandin	1	
St. Hilaire	Benoit Damien fils	2	
St. Jean Bte. de Rouville	Nérée Bordua	1	
"	Joseph Lambert	1	
"	Pierre Lambert	1	
"	L. Remy	1	
"	J. B. Hébert	1	
Ste. Marie de Monnoir	Hubert Gingras	1	
"	Paul Gemme	1	
"	Ernest Rainville	1	
"	Frs. X. Marcoux	1	
St. Mathias	William Johnson	1	
"	Ephrem Cardinal	1	
"	A. Trudeau	1	
St. Michel de Rougemont	A Roy	1	
St. Paul d'Abbotsford	Nap. Legros	1	1
"	Jos. P. Rocheleau	1	1
"	Thomas Carignan	1	
"	Antoine Ménard		1
	Total	30	4

SAGUENAY.

Escoumins	Rvd. O. Lavoie, ptre	1	
"	Rvd. Arthur Guay, ptre	1	
Tadoussac	Charles Lapointe	1	
	Total	3	

SHEFFORD.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Ely North	Anthime Brazeau	1	
"	J. B. Derome and others	1	
"	Nap. Salois	1	
"	A. Lawrence	1	
Ely South	Aug. Pelletier	1	
"	Modeste Choinière	1	
"	Laurent Racicot	1	
"	Hypolite Bombardier	1	1
"	Joseph Veroneau	1	
"	A. L. Darby	1	
Granby	H. Beauregard	1	
"	J. S. Irwin	1	
"	J. H. Rocheleau	1	
"	Jos. Duncan	1	
"	E. Salois	1	
"	C. E. Booth		1
Roxton Falls	Louis Brazeau	1	
"	Edéas Larocque	1	
St. Alphonse	Agricultrual Society	2	
St. Anne Stukely	Joseph Morin	1	
"	E. L. Standish	1	
St. Cécile de Milton	Maxime Robert	1	
"	Azire Coté	1	
"	F. H. Rocheleau	1	
St. Prudentienne	Denis Casaubon	1	
St. Valérien de Milton	Revd. E. P. Coté	1	1
"	Désiré Chaput	1	
"	J. B. Dépot	1	
"	Dufresne, Boutellier & others	1	
"	Hormidas Paquette	1	

SOULANGES—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Polycarpe Village	F. X. Plante	1	
"	J. A. Miron	1	
St. Télesphore	M. McGregor	1	
"	J. L. Chenier		1
"	L. Charlebois		1
St. Zotique	Frs. Méthot	1	1
"	D. M. Macpherson	1	
St. Ignace du Coteau de Lac	Jos. Bourbonnais		1
"	Treffié Doyon	1	1
Station du Coteau	L. A. Sauvé		1
	Total	8	12

STANSTEAD.

Barford	James Mullins	1	
"	Philippe Dupuis	1	
"	M. Vincent	1	
"	A. Gérin	1	
Barnston	G. B. Hall	1	
"	H. E. Corliss	1	
"	W. K. Baldwin	1	
"	N. W. Heath	1	
"	George E. Searles	1	
"	Fred L. Brown	1	
"	W. J. Niblock	1	
"	A. W. Martin	1	
"	E. F. Remick	1	
Coaticook	A. Gerin	2	
Dixville	Moses Turgeon	1	

Shefford West	Z. Lawrence		1
Stukely North	Fromagerie Notre Dame	1	
"	Fromagerie St. Antoine	1	
"	J. P. Lefebvre & Co	2	
"	Paul Massé	1	
"	Herménégilde Ballard	1	
Stukely South	Stanley Purdy	1	
"	D. Phaneuf	1	
"	David Daigneau	1	
"	Magloire Fleurant	1	
	Total	40	4

SHERBROOKE.

Ascot	J. R. Sorel	1	
Compton (village)*	Compton Model Farm		1
Compton*	H. W. Donek	1	
" *	A Gérin	5	
Lennoxville	Lennoxville Creamery Co		1
Orford	Jean Plante	2	
"	Hormidas Laplante	1	
Sherbrooke	J. A. Camirand		1
	Total	10	3

*Compton has been, by error, transferred into the County of Sherbrooke.

SOULANGES.

Cèdres	Emery L'Ecuyer		1
St. Clet	J. Bt. Marleau	1	1
St. Joseph de Soulanges	Godefroy Constant		1
St. Jos de Soulanges Village	Olivier Charlebois		1
"	Dramond Pilon	1	
"	Samuel Leroux		1
St. Polycarpe	J. H. Leclair		1
Hatley	Luke S. Colt	1	
"	Jos. Morrison	1	1
"	Nelson Hish	1	
"	Jos. & A. Mackay	1	
"	Pierre Ménard	1	
Stanstead	John Taylor	1	
"	Alex. Thompson	1	
"	R. E. Scott	1	
"	E. C. Baldwin	1	
"	W. S. A. Buck	1	
	Total	20	1

ST. HYACINTHE.

La Présentation	M. A. Piché	3	
"	Ludger St. Pierre	1	
Notre Dame de St. Hyacinthe	Soc. de fab. du Grand Rang.	1	
"	J. M. Archambault	1	1
St. Barnabé	Société du village	1	
"	Société de la paroisse	1	
"	Société de la Basse double	1	
St. Charles	Clodomir Millette	1	
St. Dumase	Fromagerie de Corbin	1	
"	Fromagerie du Pont	1	
"	Jacques Jodoin	1	
St. Denis	J. Bte. Phaneuf	1	
"	Alphonse Goulet	1	
"	Pierre Angers	1	
"	Frs. Allard	1	
St. Jude	Société de Beurrerie		1
St. Marie Madeleine	Napoléon Chabot	1	
"	J. R. Lofièche	1	
St. Thomas d'Aquin	Fromagerie de	1	
	Total	20	2

ST. JEAN.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Bernard de Lacolle	J. Bte. Béard fils	1	
"	Thos. Boyce	1	
"	Joint Stock Co	2	
St. Blaise	Syndicat de fromagerie	1	
"	Delphis Brossard	1	
St. Jean Ville	Guertin & Langelier		1
St. Marguerite de Blairfindie	Gonzage Couturier		1
St. Valentine	Soc. de fabrication de Stottville	1	
	Total	7	2

ST. MAURICE.

La Visitation, Pte. du Lac	Jos. Ant. Garceau	1	
"	Télesphore Frechette	1	
"	Olivier Duplessis		1
St. Anne d'Yamachiche	Thomas Meunier	1	
"	L. E. Lajoie & Co	1	
"	Thomas Roy	1	
"	Hercule Bourassa		1
St. Barnabé de Gatineau	Arthur Milot	1	1
"	Pierre Corriveau	1	
"	Thomas Lacerte	1	
"	Wilfrid Eliotte	1	
"	Edouard Paquin	1	
"	Honoré Lamotte	1	
"	Alphonse Grenier	1	
"	Ph. Gelinas		1
St. Boniface de Shawenegan	Nap. St. Louis	1	

TEMISCOUATA.—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Epiphane	Auguste Breton & al		1
St. Louis du Ha! Ha!	Drouin & Carrier	1	
St. Paul de la Croix	Thomas Beaulien		1
Trois-Pistoles	E. F. Hebert		1
"	L. D. Francœur		1
"	Alphonse Nicole		1
Whitworth (Ste. Modeste)	Godbout & Co		1
	Total	4	13

TERREBONNE.

Doncaster	Israel Thouin	1	
New Glasgow	Louis Brault		1
St. Agathe	Octave Auclair	1	
"	M. Coté	1	
"	M. F. Pilon	1	
"	A. E. Garth	1	
"	Alex. Miller		1
St. Anne des Plaines	Siméon Giguère	1	
St. Janvier	N. E. Clément	1	
St. Jérôme	Allard & Co	1	
"	J. Racine	1	
"	J. Cyr	1	
"	Israel Dion		1
St. Marguerite du L. Masson	Legault & Daniel		1
St. Sauveur	Grégoire Bélanger	1	
"	John Kempton		1
"	Albert Kempton		1
"	E. Brosseau		2
St. Sophie de Lacorne	Albert Gaudet	1	

"		Thelesphore Pellerin	1	
"		Zacharie Lamy	1	
"		M. Corriveau	1	
"		Célestin Bellemare	1	
St. Elie		Ludger Rivard	1	
"		Isaïe Dechaine	1	
St. Etienne des Grés		Majorique Milette	1	
"		Nap. Ringuette	1	
St. Mathieu		Raphael & Théophile Dechaine	2	
St. Sevére		Eucharist Lamy	1	
"		Alfred Ferron	1	
"		Toussaint & Grenier	1	
"		Paul Pelletier	1	
Three Rivers		Jules Milot	1	
"		Hormidas Duva	1	1
Yamachiche		Hercule Bourrassa	1	1
"		Thomas Mennier	1	
"		Gélinas & Lajoie	1	
"		Thomas Roy	1	
"		Adrien Milot		1
		Total	33	7

TEMISCOUATA.

Begon		Joseph Massé		1
Fraserville		Adjutor Picard	1	
Ile Verte		Préfontaine Bros		1
Kakouna		Préfontaine Bros		1
Madawaska (N. D. du Lac)		Louis Gagnon	1	
Rivière du Loup		William Fraser		1
St. Antonin		Florentin Soucy	1	
St. Arsène		April & Co		1
St. Clément		Pierre April & others		1
St. Eloi		Théophile April & others		1
"		M. Charbonneau	1	
"		Louis Brault		1
St. Thérèse de Blainv.	Village	Seminaire		1
"		Joseph Graton		1
		Total	11	13

TWO MOUNTAINS.

L'Annonciation d'Oka		RR. PP. Trappistes	1	1
"		William Lalonde		1
"		Raphaël Charest		1
St. Augustin		J. H. Charbonneau	1	
"		Osias Duquette		1
St. Benoit		Anthime Pilon	1	
"		Elysee Cyr	1	
St. Benoit		Samuel Fauteux		1
St. Canut		Jos. Cyr	2	
"		Fred. Rochon	1	
"		Israël Dion		1
St. Eustache,	Parish	Oscar Paquette		1
St. Eustache	(Village)	Evangéliste Binette		1
"	(Parish)	F. X. Laurin		1
St. Hermas		Benj. Beauchamp, M.P.P.	1	
"		Honoré Pagé	1	
"		Robert Roy	1	
St. Joseph du Lac		McCail & Ladouceur	1	
"		J. B. Damour		1
Ste. Monique		A. Gaudet	1	
"		Joseph Cyr	1	
St. Placide		Alph. Dubreuil		1
Ste. Scholastique	(Parish)	Augustin Blouin	1	
"	"	Société de Patrons	4	
"	"	Cie. de Beurrerie		1
"	(Village)	J. N. Dumoulin	1	
		Total	19	12

VAUDREUIL.

MUNICIPALITIES.	PROPRIETORS.	C.	C.
Newton	Donald S. Morrisson	1	
"	Fred. Besner		1
Pointe Fortune	Thos. Ross & Son	1	
"	Eugène Seguin	1	
Rigaud Village	J. Bte. Besner	1	
St. Jeanne de l'Ile Perrot	Société par actions	1	
"	Azilda Daoust		1
St. Lazare	Oscar Denis		1
St. Madeleine de Rigaud	Trefflé Pilon	1	
Ste. Larthe	Peter Monaghan	1	
"	Rosario Seguin	1	
"	Société coopérative	1	
"	Alfred Rangér		1
"	Henry Hodson		1
St. Michel de Vaudreuil Par	Paul Denis		1
"	Bazile Charlebois		1
"	Osias Brasseur		1
St. Michel de Vaudreuil Vil.	Amédée Castonguay		1
Très Saint Redempteur	Napoléon Quesnel	1	
"	George Vnlois		1
	Total	10	10

VERCHERES.

Ste. Anne de Varennes	Félix Provost	1	
"	Octave Allard	1	
St. Antoine	Cartier & Archambault		1
"	Elie Gaudette	1	
"	Fontaine & Desmarteau	1	
St. Frs. Xavier de Verchéres	Jérémie Handfield	1	

WOLFE—*Continued.*

MUNICIPALITIES.	PROPRIETORS.	C.	C.
St. Fortunat de Wolfstown	Girard Bros.	1	
"	Joseph Pelletier	1	
"	Lazare Massé	1	
"	Norbert Laventure	1	
Stratford	Gédéon Héon	1	
"	Walter Hébert	1	
"	Jérémie Fisette	1	
"	Magloire Demers	1	
Weedon Centre	Frs. Ouellet	1	
"	Vve. Siméon Fontaine	1	
Wolfestown	Louis Gilbert	5	
"	Gilbert & Morin	1	
Wotton	Lefebvre & Co	4	
"	Cie de Matériel de Laiterie		1
	Total	39	1

YAMASKA.

Pierreville Village	Armand Ally	1	
St. Antoine, Baie du Febvre	J. N. Duguay	1	
St. Antoine, Baie du Febv	Calixte Allard & al	2	
"	Zéphirin Duguay	1	
"	Elie Proulx	1	1
"	J. L. Lemire & Co	2	1
"	C. B. Jutras	1	
"	Moïse Lemire & al	1	
"	Chas. Drouin	1	
St. Bonaventure d'Upton	Eusébe Proulx & Co	1	
"	Adélard Lanoie	1	

"	Jos. Dansereau		1
Ste. Julie	Louis Blain	1	
St. Marc de Cournoyer	Gaspard Leroux	1	
"	Alexis Chicoine		1
St. Mathieu de Beloeil	Cie de fromageric	1	
"	Félix Blain	1	
Ste. Théodosie	Bruno Larose	1	
Ste. Trinité de Contrecœur	L. E. Charron	1	
"	Louis Fontaine & al	1	
	Total	12	3

WOLFE.

D'Israéil	L. E. Adam	1	
Dudswell	Willen	1	
"	Coopérative	1	
"	J. W Andrew	1	
"	Jos. Fontaine	1	
Garthby	Achilles Jacques	1	
Ham North	Jos. Cloutier	1	
"	Chas. Lavigne	1	
"	Herg. Guertin	1	
"	Jos. Picard	1	
"	Achille Richer	1	
"	Jos. Lehouiller	1	
"	Chs. Patry	1	
"	Jos. Lavertu	1	
"	Albert Lavigne	1	
Ham South-West	J. H. Brochu	1	
Lake Weedon	J. Després	1	
St. Joseph de Ham Sud	Jos. Bergeron	1	
St. David de Deguire	Joseph Parè & al	1	1
"	V. Beaulac & al	1	
"	H. Lebrun & al	1	
"	Chs. Cyr	2	
St. Elphège	Wm. Parent	1	
"	Siméon Paquette	1	
St. Frs. du Lac St. Pierre	Chs. Cyr	1	
"	J. O. Duhaime	1	
"	J. N. Duguay	2	1
St. Guillaume d'Upton	J. B. Vigneau	1	1
"	Adélard Lanoie	1	1
"	Syndicat	1	
St. Michel Yamaska Village	Roch Parenteau	1	
St. Michel d'Yamaska	Narcisse Théroux	1	
"	Louis Parenteau	1	
"	Narcisse Parenteau	1	
"	Thomas Delaney	1	
St. Pie de Deguire	Charles Cyr	1	1
"	Edmond Dauplaise	1	
St. Thomas de Pierreville	William Parent	1	1
"	J. Omer Desbiens	1	
"	L. Desfosses	1	
St. Zéphirin de Courval	Herman Lefebvre	1	1
"	J. N. Duguay	2	
"	Société par actions	2	
"	Alex. Simoneau	1	
"	G. P. Rousseau	1	
"	H. Parent	1	
"	Cyprien Jutras	1	
	Total	46	9

RECAPITULATION.

COUNTIES.	C.	C.
Argenteuil	31	3
Arthabaska	51	2
Bagot	36	9
Beauce	99	9
Beauharnois	18	2
Bellechasse	12	11
Berthier	33	7
Bonaventure	4	
Brome	36	7
Chambly	8	1
Champlain	63	1
Charlevoix	24	1
Chateauguay	22	4
Chicoutimi	38	6
Compton	21	4
Dorchester	31	4
Drummond	34	4
Gaspé		3
Hochelaga		2
Huntingdon	32	2
Iberville	14	2
Maskinongé	32	8
Megantic	53	3
Missisquoi	36	5
Montcalm	11	6
Montmagny	6	9
Montmorency	5	6
Napierville	6	3
Nicolet	66	3
Ottawa	49	3
Pontiac	9	
Portneuf	42	9
Québec	1	4
Richelieu	25	2
Richmond	27	2
Rimouski	18	11
Rouville	30	4
Saguenay	3	
Shefford	40	4
Sherbrooke	10	3
Soulanges	8	12
Stanstead	26	1

Jacques Cartier	2	8
Joliette	37	2
Kamouraska	19	1
Lac St. Jean	23	2
Laprairie	4	2
L'Assomption	6	15
Laval	7	2
Lévis	10	2
L'Islet	7	7
Lotbinière	41	6
St. Hyacinthe	20	2
St. Jean	7	2
St. Maurice	33	7
Témiscouata	4	13
Terrebonne	11	13
Two Mountains	19	12
Vaudreuil	10	10
Verchères	12	3
Wolfe	39	1
Yamaska	46	9

Total number of Creameries	807
Total number of Cheeseries	1467

ALPHABETICAL TABLE

OF LECTURERS, ORATORS, AND REPORTERS AND PERSONS HAVING TAKEN PART IN THE DISCUSSIONS.

MM. AUGER, M.—220, On the Babcock.

" AYER, A. A.—212, Lecture.

" BARNARD, ED. A.—46, Translates the President's invitation; 46, Proposes the appointment of committees, on the committee; 51, On the price of cheese; 89 Lectures: How to increase farmers' profits; cheap milk production; 85, Cheap rations; 89 hoed crops; 91, Composition and comparative value of crops; 96; A 12 years rotation and cropping of 60 arpents; 58, On manuring land; deep ploughing; 108, Lawes and Gilbert's experiments; table of the same; 185, Conclusion; 120, 122, Science in agriculture; 124, Resolutions offered; 124, In favour of the diffusion of agricultural information; 124, In favour of a better system of manuring land; 125, In favour of large factories; 125, Of improved roads; 126, Of co-operative Associations; 126, Of improved modes of freightage; 146, Of agricultural comitia; 218, On water in the dairy; 249, On feeding stock; 267, On the competition of syndicates at Montreal; 267, On the delivery of cheese at the factories; 267, On the relations between the Dairymen's Association and the Association of the dealers in butter and cheese.

" BEAUBIEN, THE HON. LS.—73, telegram; 228, speech.

" BOUCHARD, LS.—74, address from the people of Waterloo.

" BOURBEAU, D. O.—51, On the price of cheese; 53, On the work of inspection; 54, On the purchasing of things in common; 56, On payment for milk by the Babcock; 67, On marbled butter; 69, On ripening cream by ferments; 72, On butter-making 162, Lecture, creamery and cheesery, syndicates; 267, Report of committee on silage.

MM. BOURBEAU, ELIE—47, Report on last inspection of syndicates; 50, On the price of cheese; On delivering cheese in the factory; 52, Reply to Mr. Thibault; 54, On wooden whey-vats; 55, On care of milk; 55, On the Babcock test; 55, On small factories; 56, On the preservation of whey; On the Babcock test.

" CAMIRAND, J. A.—128, On good roads.

" CASTEL, EMILE—3, Address of the report; 52, On delivering cheese in the factory; 63, Reads Mr. Geo. Ferguson's report; 132, On good roads; 159, Distribution of diplomas to the inspectors.

" CHAGNON, SAMUEL—68, On working butter; 68, On white spots; 126, On good roads; 158, On water in the dairy.

" CHAPAIS, J. C.—41, On the committee of nomination; 52, On delivering cheese in the factory; 68, On the percentage of water in butter; 125, Reads the report of the committee of nomination; 152, Proposes the adoption of the three first resolutions of Mr. Barnard; 128, On good roads; 135, Lecture on the dairy comitia; 159, On groves round dairies; 126, On the average richness of milk; 265, On delivery of cheese at factories.

MM. CHAREST, RVD. C.—72, On the making of butter; 126, On good roads.

" CHICOINE, ALEXIS—72, On working butter.

" COUSINEAU, RVD. D.—171, Resolution in favour of a union between the different agricultural associations.

" DALLAIRE, O. E.—160, Lecture on "The law of labour"; 160, On delivery of cheese at the factory.

" DRAPER, J. C.—217, On water in use in the dairy.

" DOONAN, M.—248, Questions put to Mr. Wherry, on the loss of fat in cheese-making.

" FERGUSON, GEO. W.—63, His report as inspector.

" FOSTER, H. S.—81, On the Babcock test; 132, On good roads; 256, On the syndicate competition in Montreal; 256, On the care of cows before calving; 256, Resolution in favour of improved methods of freightage and the preservation of perishable agricultural products; 265, On the organisation of chambers of commerce; 267, Vote of thanks.

" GIRARD, JOS., M. P. P.—73, Telegram; 169, Speech.

" GRANT, A. W.—73, Speech.

" GREIG, WM.—172, Speech.

" GRIGNON, DR. W.—46, On the nomination committee; 131, On good roads; 154, On the hygiene of factories.

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FIFTEENTH REPORT

OF THE

DAIRYMEN'S ASSOCIATION

OF THE

PROVINCE OF QUEBEC

SUPPLEMENT TO THE REPORT OF THE HON. COMMISSIONER OF AGRICULTURE AND COLONISATION

1896

PRINTED BY ORDER OF THE LEGISLATURE

QUEBEC
PRINTED BY BROUSSEAU & PAGEAU
PRINTER TO HER MOST EXCELLENT MAJESTY THE QUEEN

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1897

Presidents and Secretary of the Dairymen's Association

The Hon. P. B. de la BRUÈRE,
1st President 1882, '88.

N. BERNATCHEZ.
2nd President, 1889, '91,
4th Vice-President, 1888.

The Rev. T. MONTMINY,
3rd President, 1892, '96,
6th Vice-President, 1890.

J. de L. TACHÉ,
1st Secretary, 1882,-1892.

FIFTEENTH ANNUAL REPORT

OF THE

DAIRYMEN'S ASSOCIATION

OF THE

PROVINCE OF QUEBEC

To the Hon. Commissioner of Agriculture and Colonisation,

Quebec.

SIR,

The Board of Directors of the Dairymen's Association of the Province of Quebec has the honour to offer you the following report of its operations during the year 1896, and of the Annual Meeting held at Joliette, 2nd and 3rd December last.

THE SECRETARY-TREASURER OF THE DAIRYMEN'S
ASSOCIATION OF THE PROVINCE OF QUEBEC,

EMILE CASTEL.

St-Hyacinthe, February 15th, 1897.

Officers and Directors of the Dairymen's Association

FOR 1897

Honorary President : L'ABBÉ T. MONTMINY, St. Georges de Beauce.
President : M. MILTON MACDONALD, M. P. P., Actonvale, Que.
Vice-President : M. J. C. CHAPAIS, St. Denis de la Bouteillerie, Que.
Secretary-Treasurer : M. EMILE CASTEL, St. Hyacinthe.

DIRECTORS :

DISTRICT	NAMES	RESIDENCE
Arthabaska	Messrs D. O. BOURBEAU	Victoriaville.
Beauce	J. DE L. TACHÉ	Scott Junction.
Beauharnois	ROBERT NESS	Howick.
Bedford	C. H. PARMELEE	Waterloo.
Charlevoix aud Saguenay	J. D. GUAY	Chicoutimi.
Chicoutimi	JOS. GIRARD, M.P.P.	St-Gédéon, Lac St. Jean.
Gaspé	ALEXIS CHICOINE	St. Marc, Verchères.
Iberville	L'ABBÉ V. CHAREST	Sherbrooke.
Joliette	SAM. CHAGNON	St. Paul l'Ermite.
Kamouraska	FRS. GAGNON	St. Denis de la Boutcillerie.
Montmagny	GABRIEL DUMONT	Ste. Hénédine.
Montreal	J. A. VAILLANCOURT	Montreal.
Ottawa	N. F. BÉDARD	Montreal.
Quebec	ED. A. BARNARD	L'Ange Gardien, Mtcy.
Richelieu	J. L. LEMIRE	La Baie du Febvre.
Rimouski	CHS. PRÉFONTAINE	Isle Verte.
St. François	J. A. CAMIRAND	Sherbrooke.
St. Hyacinthe	L. T. BRODEUR	St. Hugues, Bagot.
Terrebonne	L'ABBÉ COUSINEAU	Ste. Thérèse, Terrebonne.
Three-Rivers	L'ABBÉ D. GÉRIN	St. Justin, Mask.

LEGISLATION.

AUTHORISING THE FORMATION OF AN ASSOCIATION UNDER THE NAME OF "DAIRY ASSOCIATION OF THE PROVINCE OF QUEBEC."

(1749 to 1755 Q. R. S. and Schedule.)

1749. The Lieutenant-Governor in Council may authorise the formation for the Province of an association, having for its object to promote improvement in the manufacture of butter and cheese, and of all things connected therewith, under the name of the "Dairy Association of the Province of Quebec," 45 V., c. 66, s. 1.

1750. The association shall be composed of at least fifty persons, who shall sign a declaration in the form of the schedule annexed to this section; and every member of the association shall subscribe and pay, annually, a sum of at least one dollar to the funds of the association.

The Commissioner of Agriculture and Colonisation shall be *ex-officio* a member of the association. 45 v., c. 66, ss. 2 and 6; 50 V., c. 7, s. 12.

1751. Such declaration shall be made in duplicate, one to be written and signed on the first page of a book to be kept by the association for the purpose of entering therein the minutes of their proceedings, during the first year of the establishment of such association, and the other shall be immediately transmitted to the Commissioner of Agriculture and Colonisation, who shall, as soon as possible after its reception, cause to be published, a notice of the formation of such society in the Quebec Official Gazette. 45 V., c. 66, s. 3; 50 V., c. 7, s. 12.

1752. From and after the publication, in the Quebec Official Gazette, of the notice of the formation of the association, it will become and shall be a body politic and corporate, for the purposes of this section, and may possess real estate to a value not exceeding twenty thousand dollars. 45 V., c. 66, s. 4.

1753. The association shall have power to make by-laws, to prescribe the mode or manner of admission of new members, to regulate the election of its officers, and, generally, the management of its affairs and property. 45 V., c. 66, s 5.

"**1753***a*. The association, with a view of obtaining a more prompt and complete diffusion of the best method to be followed for the production of milk, the fabrication

of dairy produce, and, in general, the advancement of the dairy industry, may subdivide the Province into regional divisions, in which syndicates, composed of proprietors of butter and cheese factories and like industries, may be established.

The formation and working of such syndicates are governed by the regulations made by the said Association and approved by the Lieutenant-Governor in Council: and such syndicates shall be under the direction and supervision of the Association.

To such syndicates, the Lieutenant-Governor in Council may grant, out of the Consolidated Revenue Fund, a subsidy equal to one-half of the expenses incurred for the service of inspection and instruction organised therein, including the salary of inspectors, their travelling and other expenses directly connected therewith, but not to exceed the sum of two hundred and fifty dollars for each syndicate.

" **1753***b*. The inspectors, including the Inspector General, are appointed by the Lieutenant-Governor in Council, and shall be experts who hold certificates of competence from the board of examiners mentioned in article 1753*d*.

The inspectors are to superintend the production and supply of milk, as well as the manufacture of butter and cheese in the establishments so organised into such syndicates, the whole in conformity with the regulations made by the said Association and approved by the Lieutenant-Governor in Council.

" **1753***c*. The salary of the Inspector General shall be paid by the Association.

His duties shall be defined by regulations to be passed by the Association and approved by the Lieutenant-Governor in Council.

" **1753***d*. A board of examiners may be appointed by the Association for the purpose of examining candidates for the office of inspector.

The working of such board shall be governed by the regulations to be passed for that purpose by the Association and approved by the Lieutenant-Governor in Council.

" **1753***e*. It shall be lawful for the Lieutenant-Governor in Council to grant to the said society an additional sum of one thousand dollars, annually, for the direction and supervision of the syndicates, for the maintenance and working of the boards of examiners above mentioned.

1754. The association shall hold an annual meeting, at such time and place as shall have been selected by the board of directors, besides those which may have been prescribed and determined by the by-laws.

At such annual meeting, the association shall elect a president, and vice-president, a secretary-treasurer and also one director for each judicial district of the Province, chosen from among the members of the association, domiciled in such districts. 45 V., c. 66, s. 7.

1755. The officers and directors of the association shall prepare and present, at the annual meeting of the association, a detailed report of their operations during

the past year, indicating the names of all the members of the association, the amount subscribed and paid by each, the names of the factories, inventions, improvements and products which deserve public notice, and giving all the information which deserves public notice, and giving all the information which they deem useful in the interest of the dairy industry. 45 V., c. 66, s. 8.

SCHEDULE

MENTIONED IN ARTICLE 1750.

We, the undersigned, agree to form ourselves into an association under the provisions of section thirteenth of chapter seventh of title fourth of the Revised Statutes of the Province of Quebec, respecting the Dairy Association of the Province of Quebec; and we hereby, severally, agree to pay to the treasurer annually, while we continue members of the Association, the sums opposite to our respective names, and we further agree to conform to the rules and by-laws of the said Association:

NAMES.	$	Cts.

45, V., c. 66, Schedule.

52 VICT. 1889 CAP. XXII.

AN ACT TO PROVIDE FOR THE FORMATION OF FARMERS' AND DAIRYMEN'S ASSOCIATIONS.

Assented to 21*st March*, 1889.

HER MAJESTY, by and with the advice and consent of the Legislature of Quebec, enacts as follow :

1. The following section is added after section thirteenth of chapter seventh of title fourth of the Revised statutes of the Province of Quebec :

SECTION XIV.

FARMERS' AND DAIRYMEN'S ASSOCIATIONS.

" **1755***a*. The Lieutenant-Governor in Council may authorise the formation in each judicial district of the Province of an association, having for its object the promotion of agriculture, the improvement of the manufacture of butter and cheese, the inspection of butter and cheese factories, and all other things in connection therewith, to be called the " Farmers' and Dairymen's Association of the District of

" **1755***b*. The association shall be composed of at least twenty-five persons, who shall sign a declaration in the form of the schedule annexed to this section.

Every member of the association shall subscribe and pay, annually, a sum of at least one dollar to the funds of the association.

" **1755***c*. The Commissioner of Agriculture and Colonisation shall be *ex officio* a member of the association.

" **1755***d*. Such declaration shall be made in duplicate, one to be written and signed on the first page of a book, to be kept by the association for the purpose of entering therein the minutes of their proceedings, and the other shall be immediately transmitted to the Commissioner of Agriculture and Colonisation, who shall, as soon possible after its reception, cause to be published a notice of the formation of such association in the Quebec Official Gazette.

" **1755***e*. From and after the publication, in the Quebec Official Gazette, of the notice of the formation of the association, such association will become and shall be a body politic and corporate for the purpose of this section, and may possess real estate to the value not exceeding five thousand dollars.

" **1755***f*. The association shall have power to make by-laws, to prescribe the mode or manner of admission of new members, to regulate the election and appoint-

ment of its officers and employés, and, generally, the management of its affairs and property, for the purpose of carrying out the objects of the association.

" **1755***g*. The first meeting of the association shall be held at the *chef-lieu* of the district, on the second Wednesday of the month following the one in which the notice of formation of the association is published in the Quebec Official Gazette.

" **1755***h*. The association shall hold an annual meeting, at such time and place as shall have been selected by the board of directors.

" **1755***i*. At such annual meeting, the members of the association present shall elect three directors from each county forming the judicial district for which the association is formed, chosen from the members of the association domiciled in the said counties, who shall constitute the board of directors of the association.

" **1755***j*. The board of directors shall elect, from their members, a president and a vice-president, and shall appoint a secretary-treasurer and such other officers and employés as they may deem necessary for carrying out the objects of the association.

" **1755***k*. The directors shall prepare and present at the annual meeting of the association a detailed report of their operations during the past year.

Such report shall indicate the names of all the members of the association, the amount subscribed and paid into the hands of the secretary-treasurer, the names and number of the factories in their district, and give such other information deemed useful and in the interest of agriculture and the dairy industry.

A triplicate of such report shall be transmitted to the Commissioner of Agriculture of the Province, and another to the Dairy Association of the Province of Quebec.

2. This act shall come into force on the day of its sanction.

SCHEDULE.

MENTIONED IN ARTICLE 1755*b*,

We, the undersigned, agree to form ourselves into an association under the provisions of section fourteenth of chapter seventh of title fourth of the Revised Statutes of the Province of Quebec, respecting Farmers' and Dairymen's Associations, and we hereby severally agree to pay to the secretary-treasurer, annually, while we continue members of the association, the sums opposite our respective names, and we further agree to conform to the rules and by-laws of the said association.

NAMES.	$	CTS.

R. S. Q., TITLE HI, CAP. IV, SECT. III.

SOCIETIES FOR THE MANUFACTURE OF BUTTER OR CHEESE OR OF BOTH.

§ 1.—*Formation of such Societies.*

5477. When in any part of the province, five or more persons shall have signed a declaration, that they have formed an association for the manufacture of butter or cheese (or of both, as the case may be) in a certain place which shall be designated as their principal place of business, and have deposited such declaration in the hands of the prothonotary of the Superior Court in the district where the society intend to do business, such persons and all such other persons as may thereafter become members of such society, their heirs, executors, curators, administrators, successors and assigns, respectively, shall constitute a body politic and corporate, under the name of " butter and cheese manufacturing society (or both as the case may be) of (name of the place and number of the manufactory as mentioned in the declaration)."

The prothonotary shall deliver to such company a certificate stating that such declaration has been made, which certificate shall be registered in the registry office of the place in which such society has its principal place of business, and be also, without delay, forwarded to the Commissioner of Agriculture and Colonisation, 45 V., c. 65, s. 1 ; 50 V., c. 7, s. 12.

5478. The declaration, to be made under the provision of this section, shall, in order to constitute into a corporation any butter and cheese manufacturing society, be in the form annexed to this section. 45 V., c. 15, s. 9.

§ 2—*General Powers and Duties.*

5479. Every such society so formed, for the purposes for which it has been established, shall enjoy all the powers vested in ordinary corporations, especially that of choosing officers from among its members, of passing by-laws not contrary to the laws of this Province, to determine the number of its members, for its internal management, and for conducting its proceedings and the administration of its affairs in general. 45 V., c. 65, s. 2.

5480. The first meeting of the shareholders of the society shall take place within the eight days following the deposit of the declaration mentioned in article 5477, after a special notice to that effect has been given to the shareholders, by at least two shareholders of the said society, which notice shall be given at least two days before the meeting for the purpose of electing officers and approving the by-laws of the society.

The annual general meetings afterwards, and all special meetings of the society shall be regulated by by-laws. 45 V., c. 65, s. 3.

5481. A book shall be kept by each society for entering the subscriptions of shares, and another for entering in detail all the transactions of the society. 45 V., c. 65 s. 4.

5482. Each of such books and the by-laws shall be constantly open to the inspection of the members of the society. 45 V., c. 65, s. 5.

5483. During the course of the month of December, in each year, a statement of its operations for the year shall be forwarded to the Commissioner of Agriculture and Colonisation by each society formed under the section. 45 V., c. 65, s. 7; 50 V., c. 7, s. 12.

SCHEDULE.

IN ACCORDANCE WITH ARTICLE 5478.

We, the undersigned, agree to form ourselves into an association in virtue of paragraph one of the third section of the fourth chapter of the eleventh title of the Revised Statutes of the Province of Quebec, to be entitled " The Association for the manufacture of butter (*or*) cheese, (*or*) of butter and cheese, of the parish of county of , and we pledge ourselves to conform to all the rules and by-laws of the said association.

(*Signatures*) 45 Vic., c. 65, Schedule.

49 VICT., CAP., XLII, 1886, OTTAWA.

AN ACT TO PROHIBIT THE MANUFACTURE AND SALE OF CERTAIN SUBSTITUTES FOR BUTTER.

(*Assented to 2nd June*, 1886.)

Whereas the use of certain substitutes for butter, heretofore manufactured and exposed for sale in Canada, is injurious to health ; and it is expedient to prohibit the manufacture and sale thereof : Therefore, Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :

1. No oleomargarine, butterine or other substitute for butter, manufactured from animal substance other than milk, shall be manufacture in Canada, or sold therein, and every person who contravenes the provisions of this Act in any manner whatsoever, shall incur a penalty not exceeding four hundred dollars, and not less than two hundred dollars, and, in default of payment, shall be liable to imprisonment for a term not exceeding twelve months and not less than three months.

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52 VICT., CAP. XLIII, 1889, OTTAWA.

AN ACT TO PROVIDE AGAINST FRAUDS IN THE SUPPLYING OF MILK TO CHEESE BUTTER AND CONDENSED MILK MANUFACTORIES. [1]

Assented to 2nd May, 1889.

Her Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :—

1. No person shall sell, supply or send to any cheese, or butter, or condensed milk manufactory, or to the owner or manager thereof, or to any maker of butter, cheese or condensed milk, to be manufactured, milk diluted with water, or in any way adulterated, or milk from which any cream has been taken, or milk commonly known as skimmed milk.

2. No person who supplies, sends, sells or brings to any cheese, or butter, or condensed milk manufactory, or to the owner or manager thereof, or to the maker

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(1) The Ontario courts have declared to be "ultra vires," an act of the legislature on the same subject like that which exists in our Provincial Statutes. The Federal Act was passed subsequently to this judicial decision, and all prosecutions regarding frauds in the furnishing of milk should, as a measure of prudence, be instituted in virtue of this Act.

of cheese, or butter, or condensed milk, any milk, to be manufactured into butter or cheese, or condensed milk, shall keep back any portion of that part of the milk known as strippings.

3. No person shall knowingly sell, supply, bring or send to a cheese, or butter, or condensed milk manufactory, or to the owner or manager thereof, any milk that is tainted or partly sour.

4. No person shall sell, send or bring to a cheese, or butter, or condensed milk factory, or to the owner or manager thereof, or to the maker of such butter, or cheese, or condensed milk, any milk taken or drawn from a cow that he knows to be diseased at the time the milk is so taken or drawn from her.

5. Every person who, by himself, or by any other person to his knowledge, violates any of the provisions of the preceding sections of this Act, shall, for each offence, upon conviction thereof before any justice or justices of the peace, forfeit and pay a fine not exceeding fifty dollars and not less than five dollars, together with costs of prosecution, and in default of payment of such penalty and costs, shall be liable to imprisonment, with or without hard labor, for a term not exceeding six months, unless the said penalty and costs of enforcing the same, be sooner paid.

6. The person on whose behalf any milk is sold, sent, supplied or brought to a cheese, or butter, or condensed milk manufactory for any of the purposes aforesaid, shall *primâ facie* be liable for the violation of any of the provisions of this Act.

7. For the purpose of establishing the guilt of any person charged with the violation of any of the provisions of sections one, or two, of this Act, it shall be sufficient *primâ facie* evidence on which to found a conviction, to show that such milk so sent, sold, supplied or brought to a manufactory as aforesaid to be manufactured into butter, or cheese, or condensed milk, is substantially inferior in quality to pure milk provided the test is made by means of a lactometer or cream gauge, or some other proper and adequate test, and is made by a competent person. Provided always that a conviction may be made or had on any other sufficient legal evidence.

8. In any complaint or information made or laid under the first or second sections of this Act, and in any conviction thereon, the milk complained of may be described as deteriorated milk, without specification of the cause of deterioration, and, thereupon, proof of any of the causes or modes of deterioration mentioned in either of the said two sections, shall be sufficient to sustain conviction. And in any complaint, information, or conviction under this Act, the matter complained of may be declared, and shall be held to have arisen, within the meaning of "The Summary Convictions Act," at the place where the milk complained of was to be manufactured, notwithstanding that the deterioration thereof was effected elsewhere.

9. No appeal shall lie from any conviction under this Act to a Judge of a Superior, County, Circuit or District Court, or to the Chairman or Judge of the Court of the Sessions of the Peace, having jurisdiction where the conviction was had ; and such appeal shall be brought, notice of appeal in writing given, recognisance entered into or deposit made, within ten days after the date of conviction, and shall be heard, tried, adjudicated upon and decided without the intervention of a jury, at such time and place as the Court or Judge hearing the same appoints, within thirty days from the date of conviction, unless the said Court or Judge extends the time for hearing and decision beyond such thirty days; and in all other respects not provided for in this Act, the procedure under " The Summary Conviction Act," so far as applicable, shall apply.

10. Any person accused of an offence under this Act, and the husband or wife of such person, shall be competent and compellable to testify.

11. Any pecuniary penalty imposed under this Act shall, when recovered, be payable one-half to the informant or complainant, and the other half to the owner, treasurer or president of the manufactory to which the milk was sent, sold or supplied for any of the purposes aforesaid, in violation of any of the provisions of this Act, to be distributed among the patrons thereof in proportion to their respective interest in the product thereof.

CONSTITUTION OF THE DAIRYMEN'S ASSOCIATION.

INCORPORATED BY THE STATUTE 45 VICT., CHAP. 66, P. Q.

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1. The Association takes as its designation : " The Dairymen's Association of the Province of Quebec."

2. The object of the association is to encourage the improvement of the manufacture of butter and cheese and of all things connected with the above manufacture.

3. To become a member of the association, a subscription of at least one dollar ($1.00) a year is all that is requisite.

4. The affairs of the association, shall be under the direction of a president, a vice-president, a secretary-treasurer, and certain directors named in accordance with the act of incorporation, all of whom shall form the Board of Directors of the Association, and shall make a report of the operations of the association at the annual general meeting of the association.

5. The election of the officers and directors shall take place at the annual

general meeting, the date of which shall be fixed by the Board; to insure the right of voting at the above election, the previous payment of subscriptions will be requisite.

6. When more than one candidate is proposed for the office, the voting shall be by *sitting* and *standing* (*assis* et *levés*), the secretary shall count the votes, and the president shall declare elected the candidate who shall have the majority of votes.

7. The officers elected shall remain in office until the following election, and shall be re-eligible.

8. The president shall take the chair at the general meetings, and at the meetings of the board of directors.

9. The president shall be, *ex-officio*, a member of all the committees of the board of directors.

10. To the secretary-treasurer shall be entrusted all the moneys and other valuables belonging to the association; he shall keep, in a special register, minutes of all meetings of the association as well as of the board of directors, and these minutes shall be signed by the president, or, in his absence, by the vice-president, and by the secretary-treasurer: he shall, besides, keep books in which shall be entered, regularly and without delay, all the monetary operations of the association. At the end of the fiscal year of the association, the secretary-treasurer shall present before the board a statement of accounts for the directors' approbation.

11. The vacancies which occur among the officers or directors shall be temporarily filled up by the board, and the board shall also nominate the directors for those judicial districts which may not as yet be represented.

12. The board, to ensure greater efficiency, shall be at liberty to claim the services of specialists as advisers.

RULES AND REGULATIONS OF THE DAIRYMEN'S ASSOCIATION.

1. The annual or general meetings of the association, as well as those of the board of directors, shall be called by notice in writing from the secretary-treasurer to each of the members of the association and of the board. Notice of the meetings of the association shall be given at least a month beforehand.

2. At the request of three directors or officers of the association, the president may call a meeting of the board of directors; the call shall be in the form mentioned above.

3. At the meeting of the board of directors, three shall form a quorum, exclusive of the president and vice-president.

4. The board of directors may name, from among its members, a committee to audit the accounts, and other committees for any purpose it may think necessary.

5. The order of business at general and official meetings shall be determined by the board of directors.

6. No question shall be submitted for discussion except it be in writing and placed before the secretary treasurer.

7. The secretary-treasurer shall be obliged to furnish security to the amount of $400.00, which security shall be subject to the approval of the board.

SYNDICATES OF CHEESE AND BUTTER FACTORIES.

BY-LAWS ADOPTED BY THE DAIRY MEN'S ASSOCIATION AND ASSENTED TO BY THE LIEUTENANT-GOVERNOR IN COUNCIL.

COPY *of the report of a committee of the Honorable Executive Council, dated January 23rd,* 1891, *approved by the Lieutenant-Governor, January 24th,* 1891. (Translation.)

No. 75.—On the approval of certain regulations of the Dairymen's Association.

The Hon. the Commissioner of Agriculture and Colonisation, in a memorandum, dated the twenty-third of January of the current year, 1891, recommends that the regulations of the Dairymen's Association of the Province of Quebec, a copy of which is annexed to the above memorandum, be approved.

Certified true copy.

(Signed).

GUSTAVE GRENIER,
Clerk of the Executive Council.

REGULATIONS OF THE DAIRYMEN'S ASSOCIATION.

Whereas, by a law passed at the last session of the Legislature of the Province of Quebec, the Dairymen's Association of the Province of Quebec was authorised to create regional divisions in which the proprietors of creameries, cheese factories, and other dairy establishments may form themselves into syndicates, for the purpose of securing a more prompt and complete diffusion of the best methods of conducting the production of milk, the manufacture of dairy products, and the advancement in general of the dairy industry ;

And whereas the said association was, by the same law, entrusted with the duty of :

1. Establishing regulations for the formation and working of the said syndicates ;
2. Of directing and superintending the syndicates ;
3. Of establishing rules to define the duties of the Inspector-General and of the

inspectors who are to superintend the production of milk and the manufacture of butter and cheese in the establishments so organised into syndicates ;

4. Of appointing a board of examiners for the examination of candidates for the office of inspectors, and of laying down regulations for the working of the said board ;

And, whereas, there is granted to each syndicate a sum equal to half the outlay incurred for the service of inspection and instruction organised in the syndicates, including the salary of the inspector, his travelling expenses, and other expenses relating directly to the said service, but which sum granted must not in any case exceed $250 (two hundred and fifty dollars) for each syndicate ;

Whereas, there has been granted to the said association, besides its subsidy and other ordinary concessions, an additional sum of $1,000 (one thousand dollars), for the expenses necessary for the direction and superintendence of the syndicates, as well as for the maintenance and due working of the board of examiners above mentioned ;

The said association constitutes, as follows, the programme of the formation and working of the syndicates, of their direction and superintendence, of the manner of conducting the proceedings of the board of examiners, and of the duties of inspectors :

I

DIVISION OF THE PROVINCE.

The province shall be divided as follows, for the purpose of the new organisation :

a. Syndicates of cheese factories or of cheese-factories and creameries :

No. of Division.	Counties comprised in the division.
1	Gaspé, Bonaventure, Matane, Rimouski, Témiscouata
2	Kamouraska, L'Islet, Montmagny, Bellechasse.
3	Dorchester, Levis, Beauce.
4	Lotbinière, Megantic, Arthabaska.
5	Nicolet, Yamaska.
6	Drummond, Richmond, Wolfe.
7	Sherbrooke, Stanstead, Compton.
8	St. Hyacinthe, Bagot, Richelieu.
9	Rouville, Iberville, St. John's.
10	Shefford, Brome, Missisquoi.
11	Verchères, Chambly, Laprairie, Napierville.
12	Beauharnois, Chateauguay.
13	Huntingdon.
14	Saguenay, Lac St. Jean, Chicoutimi, Charlevoix.
15	Portneuf, Quebec, Montmorency.

No. of Division.	Counties comprised in the division.
16	Three-Rivers, Champlain, St. Maurice, Maskinongé.
17	Montcalm, Joliette, Berthier, L'Assomption.
18	Hochelaga, Jacques-Cartier, Laval, Terrebonne, Deux-Montagnes.
19	Argenteuil, Ottawa, Pontiac.
20	Vaudreuil, Soulanges.

b. Syndicates of butter-factories.

As any limitation of territory would be a hinderance to the formation of syndicates of butter factories, on account of the small number of such existing in the province, liberty may be granted them by the association to organise themselves in accordance with the following regulations ; and the united counties in which such a syndicate shall have been formed shall constitute a territorial division for all the purposes of the present regulations.

II

DIRECTION AND SUPERINTENDENCE OF THE SYNDICATES.

1. The association shall direct the working of the syndicates :

a. By means of a fortnightly or monthly bulletin published during the season of manufacture, the prospectus-number of which shall be published at once, and distributed among the old and new members of the association and those of the public who are interested in the dairy industry ; this bulletin shall contain, especially, instruction and advice to farmers, producers of milk, patrons of factories, to inspectors and makers of cheese and butter, relating more especially to the time of year following the issue of each number ; it shall also contain general information in connection with the dairy industry.

b. By means of the school-factory of the association, whose work shall be conducted with a view to the new organisation.

2. The superintendence of the syndicates shall be exercised by the association :

a. Through the Inspector-general and the inspectors of the syndicates, whose duties and office will be defined hereafter ;

b. Through its ordinary officers, as regards all private or public communications it may have to make to the representatives of the syndicates of the factories syndicated.

3. The association does not pretend to exercise any control over the interior management of the financial arrangements of the syndicates : it will suffice, if the latter conform to the present regulations to entitle them to be considered as having accepted the direction and superintendence of the association.

4. The direction and superintendence of the association shall be exercised with a view to securing, especially in the syndicated establishments :

a. A regular attention to the testing of the patrons' milk, in order to obtain

from them milk of the best quality, neither skimmed, nor watered, nor adulterated in any way ;

b. A scrupulous attention to the general keeping in order of the factories, and to the maintenance of cleanliness therein ;

c. Good quality and uniformity in the products manufactured ;

d. A uniform system of book-keeping, sufficient to insure the exactness and integrity of the operations of the year, which each factory will have to furnish to the association.

III

ORGANISATION AND WORKING OF THE SYNDICATES.

1. A syndicate shall be constituted by the associating together of creameries, cheese-factories, or other dairy establishments, to the number of not fewer than (15) fifteen, or more than (30) thirty ; it shall have for its aim the diffusion over the division in which it is formed of the best methods of producing milk and of manufacturing dairy products ; it may also aim at adopting and exercising all measures calculated to protect such interests of the patrons and proprietors as are to the general advancement of the dairy industry : the proprietors or representatives of the syndicated factories shall for that purpose engage to support between them, in a proportion left to their discretion, the expense of the hiring of one or more experienced inspectors, who shall superintend the production and supplying of the milk, as well as of its manufacture into cheese and butter in the syndicated factories. The inspector shall be under the direction of the Dairymen's Association, under the conditions hereinafter enumerated, and shall conform to the present regulations.

2. The syndicate shall organise, as much as possible, by the beginning of the manufacturing season.

3. The syndicate shall organise by the signature in duplicate of the proprietors or the representatives of the factories who wish to form themselves into a syndicate to a declaration, on a printed form, which shall be furnished by the association, and a duplicate of which shall be sent without delay to the secretary of the association, who shall acknowledge its receipt.

4. In each territorial division, syndicates composed exclusively of cheese factories or of creameries, or of creameries and cheese-factories, may be established.

5. If in any division there be not found a sufficient number of factories whose representatives desire to form a syndicate, these factories may agree with those of a neighbouring division to form a syndicate, or to become part of an already existing one.

6. Every factory shall have the right to ask for admission into the syndicate of its division.

7. Every syndicate shall have the right to prevent any factory of its division from uniting with a syndicate of a neighbouring division, except in the case provided for by the following article.

8. For special reasons, the association shall be empowered to allow certain factories of a division to unite with the syndicate of a neighbouring division, provided that this permission hinder not the formation of a syndicate in the former division.

9. The representative of the factories associated into a syndicate shall name a president, a vice-president, and a secretary-treasurer, who shall be the officers of the syndicate, and whose address shall be given to the association ; all official correspondence shall be carried out by the medium of the secretary-treasurer.

10. At the end of each season, the syndicate shall render an exact account, certified by its secretary-treasurer, of the salary paid to its inspector, his travelling and other expenses in direct relation to his duties of inspection, such as hire of carriages, railway and steamboat fares, board, stationery, postage, purchase of instruments for the inspector's use, &c., &c.

11. As the government grant is given specially for the service of inspection, this grant in no case shall exceed the half of the genuine amount of the expenses alone just mentioned, provided that half do not exceed two hundred and fifty dollars ($250.00) ; and the payment thereof shall only be made at the end of the dairy-season, after the report mentioned in the preceding article shall have been made to the association by the syndicate.

12. A subscription shall be paid by the proprietors, or by the representatives of each factory, to the Dairymen's Association, or to the dairy association of the district in which the syndicate is formed, in order that the makers or the directors may be kept *au courant* of the work of the association ; moreover, they shall forward to the association a complete certified report of the operations of their factory, according to the official form adopted by the association ; which shall not be made public except by consent of those therein interested.

IV

OF THE INSPECTOR-GENERAL AND THE INSPECTORS OF SYNDICATES.

1. The Inspector-General and the inspectors of syndicates are appointed by the Lieutenant-Governor-in-Council ; but in neither case will any one be appointed until he shall have previously undergone an examination sufficient to establish his qualifications before the board of examiners of the association. The Inspector-General shall be paid by the association, and other inspectors by the syndicates.

2. The duties of the inspectors belonging exclusively to the teaching of the best methods of the production of milk and its proper supply to the factories, the manufacture of dairy-products, correct accounts, and the orderly management of the factories, these officers shall carefully avoid meddling with any troubles, with which their duties have no concern, whether they arise between neighbouring factories, between buyers and sellers, or between patrons and proprietors. They must, under pain of immediate dismissal, observe the most guarded discretion in regard to all matters they note in the exercise of their duties, and reveal them to no one except to the society or to the officers and servants of the factories concerned.

§ 1. OF THE INSPECTOR-GENERAL.

1. The Inspector-General is the representative of the association accredited to the proprietors, the makers, and the representatives of the establishments under syndicates ; all the instructions, therefore, he shall give, with the approbation of the association, are to be observed.

2. Before the opening of the season, or even during the season, if he see fit, or if he receive orders to that effect from the association, the Inspector-General shall call together the inspectors of syndicates, by groups, at the school-factory of the association, or at some other factory, and, keeping them there a few days, instruct them in their duties and in the best methods of manufacture.

3. After the opening of the season, the Inspector-General shall keep himself in communication with the inspectors of syndicates by going at different times to pass two or three days alternately with each of them, to ascertain the efficiency of the factories they have in charge. In these visits, the Inspector-General will not be so much bound to visit the factories in particular, as to follow the steps of the inspectors in their ordinary duties.

4. The Inspector-General shall lend his aid to the working of the school-factory, which he shall visit, taking it in turn with the syndicates.

5. The Inspector-General shall keep, in duplicate, a special note-book, in which he shall insert, day by day, all the observations he makes on the work of each of the inspectors, and on the general management of their factories ; these notes shall be regularly communicated to the association, in time to be printed in each number of the bulletin, in which everything of public interest shall be inserted ; the Inspector-General shall also keep a daily account of his travelling and other expenses.

6. With the consent of the association, the Inspector may visit the model establishments of this province or of Ontario, for the purpose of studying and of publishing any new process of working which may have passed into current practice.

7. At the end of the season, the Inspector-General shall prepare a complete report of his work, giving a condensed statement of the observations he has made ; this report shall be in two parts ; one containing matters interesting to the public, the other, private notes on the work of each of the inspectors.

§ 2. OF THE INSPECTORS OF SYNDICATES.

1. The inspectors of the syndicates are the servants of the syndicates, and as regards questions of interior management, such as wages, payment of expenses, &c., are under the control of the officers of the syndicates.

2. As regards the performance of his duties, the inspector of a syndicate is under the direction of the association, and he must strictly conform to the instructions received from its officers or from the Inspector-General.

3. The wages, travelling and other expenses of the inspector are to be paid by the syndicate.

4. It is obligatory on each inspector to attend all the meetings called together by the Inspector-General.

5. After the meeting convoked by the Inspector-General before the opening of the season, the syndicate inspector shall convoke his makers in one of the earliest opened factories, and shall repeat to them all the information he has received from the Inspector-General.

6. In order to learn as soon as possible how far his makers understand their business, the inspector shall visit as quickly as possible all the factories he has in charge ; this done he shall devote himself to the assistance of the least skilled makers, passing a day with each of them ; later, he shall visit those whom he thinks the most skilful.

7. After having thus made himself acquainted with the situation of affairs, and having helped each maker, in proportion to his needs, with his assistance and advice, the inspector shall arrange his visits so as to make a regular routine journey from factory to factory.

8. After or about the 1st June, the inspector shall so divide his work that between two visits made to the same factory no greater number of days shall elapse than there are factories in the syndicate.

9. Unless prevented by distance, bad roads, or other hindrances, the inspector shall be present every morning at some one factory, to receive the milk in company with the maker, and shall test samples of each patron's milk ; he shall note the result of each test in a special memorandum book, which shall be preserved and handed over to the association at the end of the season ; the inspector shall always have with him on his journeys good instruments for testing milk, with which the syndicate shall provide him.

10. The test of the milk, its delivery in good condition, its manufacture, the general state of the factories, the accounts, shall receive the constant attention of the inspector, that nothing in any factory be neglected or allowed to remain in arrear.

11. The inspector shall receive from the association a special note book, in which shall appear all the observations made in the course of his inspection ; from it he shall extract and forward an abstract to the Inspector-General, or to any other officer who shall be indicated to him by the association, at the end of each season.

12. The inspector shall daily note down all his travelling expenses, and give in the details once a week to the secretary-treasurer of the syndicate ; adding the list of factories visited, and indicating the probable route of his next week's journeys, in order that the secretary-treasurer may, if he desire it, communicate with him.

13. On pain of instant dismissal, the inspector shall communicate to nobody, unless it be to the Inspector-General or the secretary of the association, his observations on the factories and the work of the persons employed in them ; still, he may,

at the request of the proprietor, of the maker, or of the president of the directors of any factory, communicate to such persons the tenor of such notes of his as concern that factory.

14. In all cases, wherein he shall see need of making observations, either to the patrons in regard to the supplying of the milk, to the maker about his work, or to the proprietor about the fittings of his factory, the inspector shall first of all address the person in fault privately, by letter or otherwise : it is only after having ascertained the existence of serious neglect, or of evident evil intention, that the inspector shall warn the parties to whom the ascertained bad state of things will cause injury. In very serious cases, the inspector shall avail himself of the advice of the Inspector-General or of the officers of the association.

15. The inspector should be deeply impressed with the importance of the most guarded discretion, not only in regard to the forgoing cases, but in all the details of his duty ; a serious infraction of this rule may be punished by the withdrawal of the certificate of competence granted by the board of examiners.

V

OF THE BOARD OF EXAMINERS.

1. The board of examiners shall be composed of three members and a secretary appointed by the board of directors at the annual convention, or about that time.

2. This board shall settle, and publish immediately, a programme of the examination to be passed by the candidates for the office of inspector to give them a right to a certificate of competence ; it shall, at the same time, give the date and the place of the examination, and mention the references to be furnished by the candidates, and the other formalities to be gone through before admission.

3. To those who pass a satisfactory examination the board shall give a certificate of competence ; this may state the degree of success obtained—pretty well, or very well,—and it shall be either provisional or definitive ; the provisional certificate will be good for only one year, and the bearer may be called upon to pass another examination, either in all the subjects of the programme, or in certain specially reserved subjects.

4. The board of examiners shall, without delay, make to the Honorable Commissioner of Agriculture and Colonisation a detailed report of the result of the examination, containing specially the names of the candidates and of those who shall have received the certificate, with the degree of success obtained.

5. Even the definitive certificate of competence may be withdrawn by the board of directors of the association from any inspector who shall be guilty of a serious breach of the rules, or who, for any other grave cause, shall be considered unfitted to discharge his duties properly.

6. If the number of candidates be not sufficient to warrant the holding of the

examination in more than one place, the association may, out of the funds allotted for the purposes of the syndicate, pay one-half of the travelling expenses of the more distant candidates from their homes to the place of examination.

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56 VICTORIA, CHAP. 37, OTTAWA.

AN ACT TO PREVENT THE MANUFACTURE AND SALE OF FILLED OR IMITATION CHEESE, AND TO PROVIDE FOR THE BRANDING OF DAIRY PRODUCTS.

[*Assented to* 1*st April*, 1893.]

HER Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :—

1. This Act may be cited as *The Dairy Products Act*, 1893.

2. No person shall manufacture, or shall knowingly buy, sell, offer, expose or have in his possession for sale, any cheese manufactured from skimmed milk, to which there has been added any fat which is foreign to such milk.

2. Every person who, by himself or by any other person to his knowledge, violates the provisions of this section, shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding five hundred dollars and not less than twenty-five dollars, together with the costs of prosecution, and, in default of payment of such fine and costs, shall be liable to imprisonment, with or without hard labour, for a term not exceeding six months, unless such fine and the costs of enforcing it are sooner paid.

3. No person shall sell, offer, expose, or have in his possession for sale, any cheese manufactured from or by the use of milk commonly known as "skimmed milk," or milk from which cream has been removed, or milk to which skimmed milk has been added, unless the words "skim-milk cheese" are branded, marked or stamped in a legible manner upon the side of every cheese, and also upon the outside of every box or package which contains the same, in letters not less than three quarters of an inch high and three-quarters of an inch wide.

2. No person, with intent to misrepresent or to defraud, shall remove, or in any way efface, obliterate or alter the words "skim-milk cheese" on such cheese, or on any box or package which contains the same.

3. Every person who, by himself, or by any other person to his knowledge, violates any of the provisions of this section, shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding five dollars and not less than two dollars for every such cheese, or box or package which is sold, offered, exposed or had in his possession for sale, together with the costs of prosecution, and, in default of payment of such fine and costs, shall be liable

to imprisonment, with or without hard labour, for a term not exceeding three months, unless such fine and the costs of enforcing it are sooner paid.

4. No person shall apply any brand, stamp or mark of the word "Canadian," "Canadien" or "Canada" as a descriptive term, mark or brand upon any cheese or upon any box or package which contains cheese or butter, unless such cheese and butter have been produced in Canada.

2. No person shall knowingly sell, offer, expose or have in his possession for sale, any cheese or butter upon which or upon any box or package which contains the same, the words "Canadian," "Canadien" or "Canada" is applied as a descriptive term, mark or brand, unless such cheese or butter has been produced in Canada.

3. Every person who, by himself, or by any other person to his knowledge, violates any of the provisions of this section, shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding twenty dollars and not less than five dollars for every such cheese or box or package, which is sold, offered, exposed or had in his possession for sale, together with the costs of prosecution, and in default of payment of such fine and costs shall be liable to imprisonment, with or without hard labour, for a term not exceeding three months, unless such fine and the costs of enforcing it are sooner paid.

5. No person shall sell, offer, expose or have in his possession for sale, any cheese or butter which is produced in any foreign country, unless the name of the country where such cheese or butter was produced, is branded, stamped or marked in a legible manner upon the outside of every box or package which contains the same, in letters not less than three-eighths of an inch high and one-quarter of an inch wide.

2. Every person who, by himself or by any other person to his knowledge, violates the provisions of this section shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding five dollars and not less than two dollars for every such cheese, or box or package of butter, which is sold, offered, exposed or had in his possession for sale, together with the costs of prosecution, and in default of payment of such fine and costs shall be liable to imprisonment, with or without hard labour, for a term not exceeding three months, unless such fine and the costs of enforcing it are sooner paid.

6. The person on whose behalf any cheese or butter is manufactured, sold, offered, exposed or had in possession for sale, contrary to the provisions of the foregoing sections of this Act, shall be *primâ facie* liable for the violation of any of the provisions of this Act.

7. In any complaint, information or conviction under this Act, the matter complained of may be declared, and shall be held to have arisen, within the meaning of *The Summary Convictions Act*, at the place where the cheese or butter complained of was manufactured, sold, offered, exposed or had in possession for sale.

8. No appeal shall lie from any conviction under this Act except to a superior, county, circuit or district court, or the court of the sessions of the peace, having jurisdiction where the conviction was had; and such appeal shall be brought, notice of appeal in writing given, recognisance entered into or deposit made, within ten days after the date of conviction; and such appeal shall be heard, tried, adjudicated upon and decided, without the intervention of a jury, at such time and place as the court or judge hearing the same appoints, within thirty days from the conviction, unless the said court or judge extends the time for hearing and decision beyond such thirty days; and in all other respects, not provided for in this Act, the procedure under *The Summary Convictions Act*, so far as applicable, shall apply.

9. It shall be lawful for any person who may be charged with the enforcement of this Act to enter upon the premises of any person suspected of violating the provisions of this Act, and make an examination of cheese or butter; and any such suspected person, who obstructs or refuses to permit the making of any such examination, shall, upon conviction thereof, be liable to a penalty not exceeding five hundred dollars and not less than twenty-five dollars, together with the costs of prosecution, and in default of payment of such penalty and costs, shall be liable to imprisonment, with or without hard labor, for a term not exceeding six months unless the said penalty and the costs of enforcing the same are sooner paid.

10. Any pecuniary penalty imposed under this Act, shall, when recovered, be payable, one half to the informant or complainant, and the other half to Her Majesty.

11. The Governor in Council may make such regulations as he considers necessary in order to secure the efficient operation of this Act; and the regulations so made shall be in force from the date of their publication in the *Canada Gazette*, or from such other date as is specified in the proclamation made in that behalf.

LIST OF MEMBERS OF THE ASSOCIATION

YEAR 1896.

PARISH OR P. O.	NAME.
ARGENTEUIL.	
Brownsburg	Thos. Ross & Sons, Monalea No 5
Dalesville	Thos. Ross & Sons, Monalea No 12
Cambria	Thos. Ross & Sons, Monalea No 16
Cushing	Thos. Ross & Sons, Monalea No 2
	Gaston Frank
Lost River	Walter Landon
Geneva	Rob. C. Brown
Grenville	Thos. Ross & Sons, Monalea No 11
Harrington East	Thos. Ross & Sons, Monalea No 14
Hillhead	Thos. Ross & Sons, Monalea No 10
Lachute	Thos. Ross & Sons, Monalea No 19
	Thos. Ross & Sons, Monalea No 8
	Thos. Ross & Sons, Monalea No 3
Mabel	Thos. Ross & Sons, Monalea No 13
Mille Isles	Thos. Ross & Sons, Monalea No 17
St. Andrews East	John Knox
	Alex. C. MacPhee
	Thos. Ross & Sons, Monalea No 9
St. Philippe	Thos. Ross & Sons, Monalea No 6
	J. A. Lahaie
ARTHABASKA.	
Arthabaskaville	Eugène Pellerin
	Marcel Desprez
	David Dumont
St. Albert	Taché & Lefebvre
Ste. Elizabeth d'Auteuil	J. D. Morin
St. Norbert	Alfred Ouellet
St. Patrick's Hill	Zéphyrin Genest
	Philias Laroche
	Rev. V. P. Jutras
	Cyrille Lambert
St. Patrick de Tingwick	Léon Boucher
	Onésiphore Lemay
St. Rosaire	Pierre Leclerc
Walker's Cutting	Evariste St. Laurent
St. Valèrede Bulstrode	Dolphis Bergeron
	Calixte Doin

PARISH OR P. O.	NAME.
ARTHABASKA.—*Continued.*	
Stanfold	Alfred Carignan
	Edmond Baril, 2 exem.
Victoriaville	Octave Gaudette
	D.O. Bourbeau, 2 exem.
	Alfred Dusseault
	Henri Hamel
Warwick	Calixte Kirouac
	A. M. Méthot
	Dominique Babineau
	Joseph Fournier
BAGOT.	
Acton Vale	Milton MacDonald, M.P.P.
	Rev. L. L. Boivin
Ste. Christine	Adolphe Lécuyer
	Hudor Julien
St. Ephrem d'Upton	Delphis Chicoine
	Jean Maurice
	Joseph Normandin
Upton	Marc MacDuff
St. Dominique	Norbert Frédette
	Louis G. Frédette
	Damina Bernard
	Emile Chagnon
	Hormidas Laplante
	D. S. Davignon
Ste. Hélène	Rev. J. U. Charbonneau
St. Hugues	L. T. Brodeur
	Emery Lafontaine
St. Liboire	Joseph Lemonde
	Lajoie & Fils
	F. Xavier Brunette
	Elzéar Rivard
St. Pie	Hector Lapalme
Ste. Rosalie	Augustin Lemonde
St. Simon	Hector L'Heureux.
St. Théodore d'Acton	Isidore Jodoin
	Majorique Lebœuf
	T. Lemoine
BEAUCE.	
St. Martin	Joseph Emile Pelletier
Lambton	Octave Lemieux
St. Ephrem de Tring	Octave Roy, from.
St. George	Rev. M. Th. Montminy
	Joseph Poulin
	Joseph Paquet
St. François	Philias Veilleux
	Charles S. Busque
St. Frédéric	Norbert Plante
	F. X. Plante

Parish or P. O.	Name.
BEAUCE.—*Continued.*	
St. Frédéric.—*Cont.*	Joseph Plante
	Nazaire Drouin
St. Joseph	Dr Jules Taschereau
St. Zacharie	Louis Drolet
St. Pierre Broughton	Alfred Gagné
BEAUHARNOIS.	
Beauharnois	Ovila Harelle
Landreville	William Durnin, 2 exem.
	A. Lemieux, 2 exem.
St. Etienne	Jérémie Brosseau, 2 exem.
	Laberge & Sauvé
	Gendron & Allard
St. Louis de Gonzague	H. Lepage
	J. A Magloire Montpetit
	D. M. Macpherson's St. Louis
Valleyfield	Joseph Poirier, fils d'Augustin
	Victor Pilon
	Lewis Simpson
BELLECHASSE.	
Beaumont	Edouard Journaux
	Jos. Vallière
St. Cajetan d'Armagh	Philibert Langlois
St. Charles	Onésime Mercier
	J. B. Paquet
St. Gervais	Dr P. Tanguay
	Etienne Côté
St. Michel	E. H. Roy
St. Raphael Est (P.O. Arthurville)	Sévérin Cinq-Mars
St. Raphael	Joseph Bolduc
St. Philémon	Joseph Hudson
BERTHIER.	
Berthierville	A. H. Parent
	J. F. Fernet, 2 exem.
	Octavien Tellier
Lanoraie	A. Ferland
	Parent, Boisvert & Cie
St. Cuthbert	Vve Antoine Robert
	Isaac Fournier
St. Barthélemi	Louis Drinville
	Edmond Dupuis
	Pierre Delcourt
	Arthur St. Pierre
St. Damien de Brandon	Joseph Boucher
	Adélard Denommé
St. Michel des Saints	L J. Alex. Ménard
St. Norbert	Arclesse Dubeau
	Joseph Ayotte
BONAVENTURE.	
St. Alexis de Matépédiac	Rev. J. E. Pelletier
	Denis Richard
Paspébiac	Rev. T. C. Duret
BROME.	
East Farnham (P.O. Sweetsburg)	Wm. Thos. Wilkinson
West Farnham	Amédée Charland
Eastman	Euclide Phaneuf
	Louis Lacaillade
Laroche	Alfred Lapierre
	Ephrem Lapierre
Knowlton	Hon. S. A. Fisher, M.P.
	H. S. Foster
	Robert Wherry
Sutton (P.O. Flat)	Albert W. Woodward
CHAMBLY.	
Boucherville	Albert Dumler
CHAMPLAIN.	
Batiscan	Pierre Lapointe
	Philippe Brunelle
	H. N. Rivard
	Louis Lizé
Champlain	Louis Philippe Sauvageau
	Zéphyrin Dontigny
N.-D. du Mont Carmel (P.O. Valmont)	Oscar Lord
	Philippe Rhéault
Ste. Thècle	Charles Audy
Ste. Anne Lapérade	Achillée Baribault
	J. Gendron
	Michel Loranger
	Alphonse Latour
	Joseph Godin
	Victor Leduc
	Elzéar Ricard
Ste. Geneviève de Batiscan	Auguste Trudel
	Ernest Jacob
	Eugène Massicotte
	L. Marchand
St. Maurice	François Ducharme
St. Narcisse	Isidore Derouin
	Treffié Trudel
	Wilfrid Boulanger
St. Prosper	Alfred Trudel
	J. T. Trudel
	F. X. O. Trudel
St. Séverin	T. Veillet
	Narcisse Bordeleau
	Majorique Bordeleau
St. Stanislas	Ovide Trudel, fils de Michel
	Jos. L. Jacob
	Alfred Trudel
St. Tite	Jacob & Paquin, 2 exem.
	J. A. Lambert
CHARLEVOIX.	
Baie St. Paul	Alfred Gagnon
	Charles Martel
	Joseph Fortin
(P.O. Pérouse)	Wilfrid Simard
	Ernest Tremblay
(P.O. St. Antoine)	Henri Côté
	Joseph Simard
	Joseph Tremblay
	Adélard Ménard
Les Eboulements	Jos. Bouchard, from.

Parish or P. O.	Name.
CHARLEVOIX—*Continued.*	
Malbaie	Jules Bradet, 2 exem.
Misère	Charles Tremblay
Murray Bay	Odilon Pilote
Ste. Agnès	François Harvey
	Elzéar Desgagné
St. Hilarion	Evariste Desmeules
	Phydime Guay
Ste. Irénée	Denis Bouchard
	Emilien Tremblay
St. Urbain	Charles Fortin
St. Placide	Gédéon Perron
CHATEAUGUAY.	
Aubrey	D. M. Macpherson's Norton Creek
Chateauguay	N. R. Laberge
	P. Macfarlane
	Arthur Barrette
Howick	Robert Ness
	A. E. Marleau
	D. M. Macpherson's Howick
Garland	Jas. McGill
North Georgetown	Etienne Marleau
Ormstown	D. M. Macpherson's Sangsters
	D. M. Macpherson's Rivière Outarde
	D. M. Macpherson's Ormstown
	D. M. Macpherson's
	Robert McEwan [Lorne
	A. S. Lloyd
River Field	John McGregor
Stockwell	M. Patnaude
Russeltown	Narcisse Beaudin
St. Chrysostôme	John Boyd
	M. Huberdeau
	D. M. Macpherson's St. Chrysostôme
	E. Gamelin
	Napoléon Hébert
Ste. Martine	Ed. McGowan
	Joseph Poirier
	Louis J. Primeau
	Hector Chartrand
	Trefflé Lécuyer, fabri.
Ste. Philomène	Delphis Lacoste
	F. P. Laberge
	Joseph Lefebvre
	Alfred Huberdeau
St. Rémi	Jos. Primeau
St. Urbain	J. A. Defayette.
	Israël Sabourin
	Wilfrid Lavigueur
	Alex. Bourgerie
CHICOUTIMI.	
Bagotville	Wilfrid Côté
Chicoutimi	J. E. A. Dubuc, Banque Nationale
	William Tremblay, arpenteur

Parish or P. O.	Name.
CHICOUTIMI.—*Continued.*	
Chicoutimi.—*Cont*	Edmond Tremblay
	Dr Z. E. Beauchamp
	François Brassard
	Richard Gagnon
	Jean Perron, 2 exem.
	J. D. Guay
	Louis Guay
	Jean Maltais
Bassin Laterrière	G. Arthur Gaudreault
N.-D. de Laterrière	Louis Aubin
Normandin	Alphonse Poirier
Rivière aux Sables	Joseph Gagnon
Rivière à l'Ours	L. P. Godin
Rivière du Moulin	Adélard Lavoie
Ste. Anne	Louis Boucher
	Henri Côté
	Ernest Gravel
	William Brassard
St. Dominique	Chas. J.B. Fortin, 2 exem.
	Nérée Bergeron
	Jean Girard, 2 exem.
" de Jonquières	Pascal Bergeron
	Joseph Gagnon
St. Joseph d'Alma	Edmond Bergeron
COMPTON.	
East Clifton	E. S. Lussier
Gould	J. L. Painchaud
Hereford	S. Q. Sweet
La Patrie	Samuel Gobeil
Paquetteville	Ludger Lazure
	Jules Adam
	Hormidas Chicoine
	Wilfrid Pariseault
Perryboro	E. H. Birch
Ste. Edwige	Louis Ladouceur
St. Malo d'Aukland	Pacifique Bréault
	Alvaresse Aubé
DEUX-MONTAGNES.	
Belle-Rivière	Magloire Desjardins
Grande Frenière	L. W. J. Payment
Oka, Ecole d'agriculture	C. Derome
St. Benoît (P.O. Belle-Rivière)	William Brown
St. Canut	Ferdinand Rochon
	Thomas Duquette
St. Eustache	Joseph Demers
St. Hermas	Honoré Pagé
	Félix Constantin
	Osias Laurin
St. Placide	Frédéric Dubreuil
	Napoléon Dubreuil
	P. M. A. Labelle
DORCHESTER.	
Frampton West	Joseph Lacasse
St. Anselme Station (Bureau Gingras)	Amédée Grégoire
Ste. Claire	Georges Richard
	William Laflamme

PARISH OR P. O.	NAME.
DORCHESTER—*Continued.*	
Ste. Claire.—*Cont.*	Clotaire Lessard
Ste. Hénédine	Gabriel Dumont
St. Isidore	Charles Turgeon
	Charles Morin
DRUMMOND.	
Drummondville	Samuel Johns
	J. A. Gosselin
	Paul Farlez
	Philogène Lévesque
	J. P. Dionne
Duncan	Michel Gauthier
Kingsey French Village	Jos. Lefebvre, 3 exem.
	T. C. Cartier
	Geo. Benoît
	Treffié Lyonnais
	Edouard Frédette
	P. St. Louis
Kingsey Falls	A. McCallum
	Rév. G. E. Caron
	Alfred Pard
L'Avenir	J. C. D. Amand
	Ephrem Charpentier
	Clovis Duguay
	Edouard Lefebvre
	Léon Bahl
St. Cyrille de Wendover	Paul Valois
	Albert Janelle
	Albéric Melançon
	Olivier Joyal
St. Bonaventure	Arthur Marcotte
St. Germain de Grantham	François Houle
	Olivier Lemaire
	Louis Sarrasin, fils
	Frédéric Moreau
St. Guillaume d'Upton	Avila O. Bellemare
	Alexis Sylvestre
South Durham	Rev. Isidore Béland
	Fulgence Préfontaine
	Henri Côté
	Eudore Côté
	A. J. Hyde
Ulverton	Thomas Porter
	Jas. Miller
GASPÉ	
Cap Chat	Odina Dugas
Ste. Anne des Monts	Joseph Lévesque
HUNTINGDON.	
Athelstan	John A. McDonald
	D. M. Macpherson's Elgin
Cazaville	D. M. Macpherson Lake View
	N. Castignier
Dewitville	D. M. Macpherson Dewitville
	M. Connell
Dundee	D. M. Macpherson Dundee
	D. M. Macpherson, Bannon

PARISH OR P. O.	NAME.
HUNTINGDON—*Continued.*	
Franklin Centre	D. M. Macpherson Franklin
Ste. Agnès	D. M. Macpherson St. Agn
	D. M. Macpherson Brystreet
Helena	Henry Hugues
	D. M. Macpherson Walkers
Herdman	D. M. Macpherson Elm tree
	D. M. Macpherson Gore
	James Miller
Huntingdon	R. S. Feeny
	W. H. Walker
	D. M. Macpherson Boyd settlement
Kensington	D. M. Macpherson Helena
Kilbain	D. M. Macpherson Lees Corner
Kelso	J. S. Macfarlane
	John Smaill
	D. M. Macpherson Kelso
La Guerre	D. M. Macpherson La Guerre
	D. M. Macpherson New found out
Port Lewis	D. M. Macpherson Port Lewis
Huntingdon	D. M. Macpherson Clyde Corner
	D. M. Macpherson Huntingdon
	Archie Smith
St. Anicet	Samuel Aubin
	D. M. Macpherson MacGowan
	E. Lécuyer
Ste. Barbe	I. Daoust
Trout River	D. M. Macpherson Trout River
IBERVILLE.	
Iberville	F. P. Hackett
St. Jean	Jules Ménard
	O. Guertin, The Hermitage Creamery
Ste. Brigide	Osias Archambault
	Louis Brodeur
	Hormidas Tessier
Ste. Sabine	Rev. A. V. Roy
Sabrevois	S. J. Roy
	Féodor Meunier
JACQUES-CARTIER.	
St. Raphael Ile Bizard	Joseph Bélanger
JOLIETTE.	
Ste. Elizabeth	H. Dudemaine, 2 exem.
	Charlie Lavoie
	Ulric Olivier

PARISH OR P. O.	NAME.
JOLIETTE.—*Continued.*	
Ste. Elizabeth.—*Cont.*	P. L. Gadoury
St. Félix de Valois	George Asselin
Ste. Mélanie	Jos Clément
	Désiré Nadeau
KAMOURASKA.	
Rivière Ouelle	David Richard
St. Denis de la Bouteillerie	J. C. Chapais
	Charles Bouchard
	Thomas Leclair
St. Germain	Louis Alfred Lévesque
St. Pacôme	Victor Hudon dit Beaulieu
	Joseph Ouellet
LAC ST. JEAN.	
Hébertville	J. Elisée Hudon
	P E. Hudon
	Gonzague Girard
	Robert Lemay
	Clovis Lemay
	Jean Ouellette
St. Jérôme	Geor. Perron
	Charles Simard
	Joseph Gagnon
St. Prime	Adélard Perron
St. Gédéon	André Bouchard
	Joseph Girard, M.P.P.
	Edy Clareau
LAPRAIRIE.	
St. Constant	Joseph Fyfe
	Victor Fyfe
St. Isidore	J. R. Pagé
	Baldérique Hébert
	Joseph Poupart
St. Philippe	Henri Longtin
L'ASSOMPTION.	
L'Assomption	I. J. A Marsan
St. Henri de Mascouche	Adélard Bourgouin
St. Paul l'Hermite	Samuel Chagnon
St. Roch l'Achigan	Camille Beauséjour
St. Sulpice	J. Arthur Chicoine
Vaucluse	Félix Suzor
LAVAL.	
Ste. Rose	O. E. Dallaire
	J. G. Héroux
St. Vincent de Paul	Camille Elie Paré
	Edmond Malepart
LEVIS.	
St. Lambert	Télesphore Paquette
	Philémon Bernard
St. Nicolas (P O. Bernadot)	Gabriel Desrochers
	Samuel Laliberté

PARISH OR P. O.	NAME.
L'ISLET.	
L'Anse à Gilles	Eustache Ménard
L'Islet	Ferdinand Thibault
	Albert Courchesne
St. Aubert	Xavier Potvin
St. Roch des Aulnaies	M. Aug. Pelletier
Trois Saumons	J. Arthur Talbot
LOTBINIÈRE.	
Leclercville	J. J. Beaudet
	Ernest Lauzé
Lotbinière	Léger Pépin
	Arthur Beaudet
	Emile Lemay
	Lucien Lemay
	Honorius Auger
St. Agapit	J. N. Allard
	Francis Roger
	Alphonse Desrochers
St. Antoine de Tilly	Guillaume Laroche
Ste. Croix	Josaphat Laliberté,
St. Edouard	Hippolyte Lord
Ste. Emélie (P.O. Leclercville)	Evariste Lauzé
St. Flavien	Louis Bibeau
	Edouard Boucher, fils
MASKINONGÉ.	
Maskinongé	Théophile Sicard
	J. Arthur Domphousse
Maskinongé Pont	Edelmar Voizard
	Cléophas Bruneau
St. Didace	Thomas Rivard
St. Justin	Pierre Baril
	Rev. M. D. Gérin
	Dr C J. Coulombe
St. Léon	Ls.-Phil. de Bellefeuile
Ste. Ursule	Henri Lessard
	Samuel Boucher
MATANE.	
Amqui	Elie Beaupré
St. Edouard des Méchins	Geo. Eugène Verrault
St. Moïse	Honoré Charette
St. Octave de Métis	J. A. Marmen
MÉGANTIC.	
N.-D. de Lourdes	Jos. Bouchard
St. Ferdinand d'Halifax	Oscar Gilbert
Sacré-Cœur de Marie	J. O. Hébert
	Jules Bouchard
MISSISQUOI.	
Bedford	Emilien Larocque
Clarenceville	Philippe Grenon
East Dunham.	C. M. Harvey
	J. G. Wales
Frelighsburg	Rev. P. A. St. Pierre
N.-D. de Stanbridge	Ovila Courtemanche
	J. B. Brault
Sweetsburg	Auguste Gagnon

Parish or P. O.	Name.
MONTCALM.	
Les Dalles	Aquila Lefebvre
St. Esprit	Pierre Lesage
St. Jacques l'Achigan	Clément Laviolette
Ste. Julienne	J. Lavoie
Ste. Marie Salomé	J. Ernest Gaudet
MONTMAGNY.	
Cap St. Ignace	G. S. Dugal
	Dolor Bossinotte
Isle aux Grues	Charles Paul Roy
	A. Jos. Roy
	Georges Dancosse
	Alfred Dancosse
	Numa Vézina
Montmagny (St. Thomas)	Georges Létourneau
	Wilf. Cleo. Jos. Proulx.
St. François Riv. du Sud	Onésime Alb. Théberge
St. Pierre Riv. du Sud	Solfrid Morin
	M. Cloutier
MONTMORENCY.	
St. Ferréol	Odilon Michel
St. Joachim	Isidore L'Heureux
	Célestin Fortin
	David Fortin
	Hugh Brown
	Antoine Thomassin
	Jos. Noé Pepin
St. Tite des Caps	Ludger Leblond
MONTRÉAL.	
2 et 4 Foundling Street	N. E. Clément
241 Rue St. Paul	Charles Langlois
Marché Ste. Anne	J. A. Vaillancourt
33-35-37 William Street	A. W. Grant
93 Ste. Elizabeth	J. A. Harel
190 Sanguinet	Isaïe Renault
214 St. Christophe	Louis Lachapelle
104 Grey Nun Street	Duckett, Hodge & Cie
206 Ryde Street	Jos. Alfred Vézina
NAPIERVILLE.	
Douglasburg	J. G. Bouchard
St. Édouard	G. Jos. Bessède
St. Rémi	Chs. Huguet Latour
NICOLET.	
Bécancour	Achille Carignan
Rivière Gentilly	H. E. Lafontaine
Nicolet	Napoléon Desfossés
	Abraham Beaulac
Ste. Brigitte des Saults	Joseph Lemire
	Henri Houle
Ste. Eulalie	Donat Desfossés
Ste. Gertrude	Gaspard Côté
	Joseph Piché
	Noé Morissette
	Narcisse Dorion
St. Grégoire	Gédéon Houle
	Hubert Dufresne

Parish or P. O.	Name.
NICOLET.—*Continued.*	
St. Grégoire.—*Cont.*	Napoléon Ricard
	J. Auréus Bergeron
	Luc Forest
	Olivier Hébert
	Luc Héon
	A. E. Désautels
St. Léonard d'Ashton	Jos. Hébert
	Ernest Doucet
	J. E. Doucet
St. Célestin	Georges Ellison
Ste. Monique	J. B. Beauchemin
	B. A. Pothier
	Charles Milot, 4 fabriques
	Joseph Descoteaux
	Syndicat de Ste. Monique, J. Descoteaux, gérant
St. Pierre les Becquets	Ferdinand Cinq-Mars
	Alfred Naud
	Noé Mercure
	Léopold Spénard
St. Samuel de Horton	David Lacharité
St Sylvère	Henri Mailhot
Ste. Perpétue	Luc Girard
St. Sylvère	Nestor Parent
OTTAWA.	
Boileau (P.O. Ponsonby)	Joseph Danis
Buckingham	Thos. Ross & Sons Monalea No 15
Cousineau	F. Lamarche
Hollands Mills	Thos. Ross & Sons Monalea No 18
Maniwaki	Frère J. Laporte
Montebello	Isaïe Legris
Montpellier	L. Montpellier
Silver Creek	Thos. Ross & Sons Monalea No 20
Thurso	Louis Sauvé
PORTNEUF.	
Allan's Mills	Adélard Perron
Cap Santé	W. Vézina
	Gabriel Hamel, 2 exem.
Ecureuils	Hubert Auger, Fromager
Grondines	L. Archambault
	Emile Hamelin
La Chevrotière	Alfred Naud
	Gédéon Laganière
	Aubert Bédard
	Georges Bédard
	J. Alf. Guertin
	Uldéric Benoit
	Arth. Morissette
N.-D. des Anges	Rev. S. Garon
	Philippe Moreau
Pointe aux Trembles	Joseph Angers, Fromager
	G. A. Larue, M.D.
	Siméon Gingras
Bureau Poiré	Rosaire Dusseault
Pont Rouge	Ambroise Bussières

PARISH OR P. O. B.	NAMES.
PORTNEUF.—*Cont.*	
St. Alban	John Savard
	Hubert Perron
St. Basile	Rev. L. A. Gauthier
St. Casimir	Majorique Lebœuf
	Tessier & Rivard
	Tancrède Germain
	J. A. Foley
	Joseph Massicotte
	C. Th. Lachance
	B. Perron
	Perron & Perron
	Rivard & Lacourcière
St. Raymond	Louis Lesage
St. Ubalde	Maxime Hardy
	Alfred Thibault
	Ludger Hardy
QUÉBEC VILLE.	
Séminaire	Rev. F. C. Gagnon
	Honoré Lortie
14 Rue St. Flavien	Saul Côté
111 Rue St. Pierre	L. Jos. Belleau
56 Côte Ste. Geneviève	Charles Mortureux
20 St. Pierre	Jos. Lapierre
St. Sauveur de Québec	Edward Rourke
QUÉBEC COMTÉ.	
Les Saules	Ambroise Jobin
Beauport	Pierre Lortie
Charlesbourg Ouest	H. A. Jos. Giroux
RICHELIEU.	
St. Aimé	Norbert Laplante
	Joseph Levasseur
	Edouard Danis
St. Louis de Bonsecours	Hubert St. Martin
	Antoine Bernier
St. Louis	Antoine St. Martin, 3 fabriques
	J. B. Laplante
St. Marcel	Odilon Vadeboncœur
St. Ours	Louis Morin
	Clément Chapdelaine
	Pierre Dufault, fils d'Ant.
	Pierre Lachambre
	François Robillard
	Amédée Bonier
	Edouard Durocher
	Adélard Gaudette
	Eusèbe St. Germain
	Geo. Rodrigue Duhamel
	Amédée Lacroix
St. Robert	Adélard Paquin
St. Roch	Donat Collet
	Alexis Collet
Ste. Victoire	Israël Larochelle & Cie
	Hercule PaulHus
Sorel	Al. D. de Grandpré
	Narcisse Cournoyer
	Pontbriand Fonderie du St. Laurent
	Ph. Duhamel

PARISH OR P. O. B.	NAMES.
RICHELIEU.—*Cont.*	
Sorel.—*Cont*	J. C. Wurtele, advocate
	Dr Latraverse & Cie
RICHMOND.	
Asbestos	Edouard Plourde
Brompton Falls	Zoël Pellerin
	J. Léo Cayouette
	Savoie & Desrochers
Danville	A. McCallum
	Jos. Lafrance, 2 exem.
	J T. Stockwell
	Hosanna Thibault
	John Nutbrown
	Chester Bernard
	A. C. McPhee
Flodden	Gilbert Stalker
	Wm. Stalker
Melbourne Ridge	James Dunbar
Melboro	John Munroe
Melbourne Upper	H. W. Armstrong
Melbourne	H. L. Burt
	A. McKay
Richmond	H W. Palmer
Stoke Centre	François Dubreuil
St. Cyr Crossing	Joe Ledoux
St. Georges de Windsor	Adélard Marcotte
	Joseph Lépine
St. François Xavier	Pierre Labbé
RIMOUSKI.	
Bic	Johnny Roy
	Adélard Blais
" (Ste. Cécile du)	Alphonse Lévesque
	Ferdinand Vaillancourt
Causapscal	Zoël Boudreault
Cedar Hall	Rev. P. Brillant
St. Anaclet	Adrien St. Pierre
St. Fabien	Edouard Jean
Ste. Félicité	Herménégilde Gagnon
Ste. Flavie Station	Joseph Ross
St. Simon	A. A. Nicole
St. Valérien	Joseph Soucy
ROUVILLE.	
St. Paul	Napoléon Legros
" Papineau	Thos. Carignan
L'Ange Gardien	Elie Bourbeau
Magenta	Cléophas Archambault
Marieville	Hubert Gingras
Rougemont Station	Emile M. Dion
	C. E. Standish
" (St. Michel de)	O. Roy
Ste. Angèle	A. Tétreault, fils d'Hy.
St. Césaire	Henri Normandin
	Isidore St. Pierre
	Hormidas Langevin
	Frédéric Ménard
St. Jean Baptiste	L. F. Robert
ST. HYACINTHE.	
La Présentation	M. A. Piché

PARISH OR P. O. B.	NAMES.
ST. HYACINTHE.—*Cont.*	
St. Barnabé	Désiré Bourque
St. Damase	La Fromagerie du Pont
	La Fromagerie Corbin
	Francis Racicot
	Jacques Jodoin
St. Denis	Louis Phaneuf
Collège (St. Hyacinthe)	Rev C. A. Beaudry
St. Hyacinthe	Emile Castel
	J. C. Desautels
	J. de L. Taché
	Jos. Ephrem Tremblay
	Camille Côté
	J. A. Plamondon
St. Jude	Pierre St. Germain
	Vertume Phaneuf
	Aldéric Dupré
	Stanislas Mathieu
	Pierre Comeau
Ste. Madeleine	Louis Chabot
ST. JEAN.	
L'Acadie	C. Gagnon
	Henri Roy
St. Jean d'Iberville	Joseph Lamoureux
St. Valentin	J. G. Bouchard
ST. MAURICE.	
Pointe du Lac	Olivier Duplessis
	Jos. Antoine Garceau
St. Barnabé	H. O. Gélinas
St. Sévère	Pierre Lacerte
	Victor Milot
Yamachiche	J. Fortunat Côté
	Hercule Bourrassa
SHEFFORD.	
Bonsecours North Stukely	J. B. Roberge
	Alex. Gouin
	Antoine Loiselle
Dalling Ste. Marie d'Ely	Rev. L. H. Nicole
St. Egypte Milton	N. Chaput
Granboro	Andrew Fossey
Granby	Toussaint Auclair
	Nelson Mitchell
	Pierre Allard
	Jas S. Irwin
Ste. Cécile Milton East	Azarie Côté
	Simon Touchette
Racine Ely	Modeste H. Choinière
Roxton Pond	H. Beauregard
" Falls	L. N. Lévesque
	S. N. Lévesque
	Napoléon Bédard
	Edéace Larocque
	Rodolphe Favreau
" East	Joseph Brun
St. Joachim	Napoléon Côté
	Herménégilde Ballard
Savages Mills	Savage & Purdy
West Ely	Nelson R. Moffat
St. Valérien	Herménégilde Robert
	J. B. Dépot

PARISH OR P. O. B.	NAMES.
SHEFFORD.—*Cont.*	
St. Valérien.—*Cont.*	Arthur Marsan
	Rev. F. P. Côté
	Cléophas Marsan
	Delphis Drolet
Shefford Vale	William Porter
" Mountain	Edward Doonan
" West	Z. S. Lawrence
	W. Murray
Egypte	C. Desmarais
South Granby	James Duncan
" Stukely	W. Stanley Purdy
	Joseph Morin
North "	Hormidas Simonneau
	J. A. Ruel
	William Daudelin
Ste. Anne Stukely	M. Archambault
Valcourt Ely	Joseph Véroneau
	Hippolyte Bombardier
	J. G. S. Pelletier
	Pierre Vincelette
	Napoléon Salois
	Joseph Racicot
Waterloo	C. H. Parmelee M. P.
	Charles Thibault
	Gédéon Boulé
	W. H. Bridge
	James Hamilton
	David Daigneault
	Napoléon Tétreault
	H. W. Boire
Frost Village	H. W. Boire
Warden	J. A. Lewis
West Shefford	Joseph Tétreault
SHERBROOKE.	
Ascot Corner	Wilfrid Duplin
Sherbrooke	J. A. Camirand
	Rev. F. Venant Charest
	Guillaume R. Haven
	Edmond Salois
SOULANGES.	
Cascades Point	Joseph Demers
Côteau du Lac (St. Ignace)	Emeric Sauvé
Côteau Station	Hormidas Lortie
Rivière Beaudette	Louis Méthot
Les Cèdres (St. Dominique)	Hector Constant
Ste. Justine	Ferdinand Besner
St. Polycarpe	J. H. Leclair
	J. H. Gareau
	Joseph Hémond
St. Télesphore	Henri Charlebois
STANSTEAD.	
Barnston	G. B. Hall
	J. L. Conorsse
" South	Geo. E. Searles
Coaticook	Edouard Morais
	Auguste Gérin
Dixville	F. Roy
	Philibert Jangaa
Fitch Bay	P. F. Remick

PARISH OR P. O. B.	NAMES.
STANSTEAD.—*Cont.*	
Heathston	W. W. Heath
Hatley	A. & J. McKay
	J. D. Morrisson
Katevale	Pierre Ménard
Kingscroft	W. J. Nibbloch
Ladds Mills	E. C. Wells
Marlington	A. B. Dairs
Oliver	G. B. Rexford
Ste. Herménégilde	J. P. Dupuis
Stanstead	P. W. Baldwin
Way's Mills	F. L. Brown
TEMISCOUATA.	
Cacouna	Joseph Michaud
Isle Verte	Chs. Préfontaine & Frère
	J. Jules Bélanger
	Isidore Dumont
Old Lake Road	F. Flo. Soucy
	R. Bérubé
Trois Pistoles	J. O. Massé
	Philias Pelletier
	Joseph Boucher
St. Arsène	Joseph Fournier
	Nazaire Lebel
St. Eloi	Elizée Dumas
St. Epiphane	Auguste Breton
	M. Frs. Patoine
St. Modeste	J. Bte. Thériault
	Firmin Couillard
TERREBONNE.	
New Glasgow	Amédée Désormeaux
	Georges Bennett
Piedmont St. Sauveur	Grégoire Bélanger
	Edmond Brosseau
Ste. Adèle	Dr W. Grignon
Ste. Anne des Plaines	Théodule Corbeil Fils
Ste. Marguerite	Rev. A. G. Moreau
Ste. Thérèse de Blainville	Antoine Desjardins
	Rev. A. Vaillancourt
	Rev. Cousineau
	André Salefranque
TROIS-RIVIÈRES.	
Banlieue des Trois-Rivières	Hormidas Duval
VAUDREUIL.	
Beauvoir	A. O. Ranger
Pointe Fortune	Thos Ross & Sons
	Monalea No 4
Rigaud	J. B. Besner
St. Lazare	Oscar Denis
Ste. Marthe	Peter Monahan
	Aurèle Cyr
Vaudreuil	Amédée Castonguay
VERCHÈRES.	
St. Antoine	Ovila Bonin
Ste. Julie	Rev. J. C. Daigneault
St. Marc	Alexis Chicoine

PARISH OR P. O. B.	NAMES.
WOLFE.	
East Dudswell	William Lefrançois
South Ham	Joseph Bergeron
Marbleton	Ephrem Lizée
	J. B. Nadeau
Ste. Camille de Wotton	Casimir Godbout
	Compagnie de Cultivateurs
St. Gabriel de Stratford	Louis Hébert
Weedon	Alphée Fontaine
	Jérémie Fisette
	Alphonse Côté
	Alex. Ewin MacLean
" Centre	Pierre J. Després
	Magloire Demers
	L. A. Lussier
Wotton	Joseph Gilbert
YAMASKA.	
Chatillon	Ovide Lépine
La Baie du Febvre	Thomas Bellisle
	J. Louis Lemire
	J. Achille Belle Isle
	Uldéric Lévesque
	J. B. Raiche
	Nazaire Lemire
N.-D. de Pierreville	Ida Niquette
St. David	D. Larivière, fils de Chs.
	Charles Cyr
	Adjénard Brouillard
St. Elphège	William Parent
	Siméon Paquette
	Félix Desfossés
St. François du Lac	Adolphe Duhaime
	Arthur Crevier
	Harry Lauzière
	Edouard Giguère
	Onésime Marcotte
St. Michel	Thomas Delaney
	Em. Cartier
St. Pie Deguire	Edmond Dauplaise
	Amand Mondon
St. Thomas Pierreville	Amand Ally
	Herménégilde Fontaine
	Adélard Boisvert
	Elie Boivin
St. Zéphyrin (P.O. Chatillon)	Evariste Boisvert
	Herman Lefebvre
Yamaska	R. P. Parenteau
ONTARIO.	
Cannifton Hastings	Frank Herns
Ferme Expérimentale d'Ottawa	Christian Marker
Ste. Anne de Prescott	Joseph Blais
St. Thomas d'Alfred	Adélard Thomas
Lefaivre P. O.	J. N. Bricault
Vankleeck Hill	Chas. S. Bennett
La Conception (Ottawa)	John MacLaughlin
Ottawa Dép. d'Agriculture	Léon Gérin
NOUVEAU BRUNSWICK.	
Bouctouche	Rev. J. F. H. Michaud

PARISH OR P. O. B.	NAMES.
MANITOBA.	
Fannystelle	Albert Bellemare
ETATS-UNIS.	
Sun Franklin (N.Y.)	James Jordan
FRANCE.	
Paris	A. Billard
Lisieux (Calvados)	Edmond Groult
Ouilly le Vicomte (Cal.)	C. Morice
Mende (Lozère)	E. Rigaux, prof. d'agr.
Langueux par St. Brieuc	l'Abbé Aignel.

RECAPITULATION AND TOTALS BY COUNTY.

Argenteuil	20	Kamouraska	7	Rimouski	12
Arthabaska	28	Lac St. Jean	13	Rouville	14
Bagot	27	Laprairie	6	St. Hyacinthe	20
Beauce	15	L'Assomption	6	St. Jean	4
Beauharnois	15	Laval	4	St. Maurice	7
Bellechasse	11	Lévis	4	Shefford	59
Berthier	17	L'Islet	6	Sherbrooke	5
Bonaventure	3	Lotbinière	16	Soulanges	10
Brome	10	Maskinongé	11	Stanstead	19
Chambly	1	Matane	4	Témiscouata	16
Champlain	35	Mégantic	4	Terrebonne	11
Charlevoix	12	Missisquoi	8	Trois-Rivières	1
Chateauguay	37	Montcalm	5	Vaudreuil	7
Chicoutimi	30	Montmagny	12	Verchères	3
Compton	12	Montmorency	8	Wolfe	15
Deux-Montagnes	13	Montreal	9	Yamaska	30
Dorchester	8	Napierville	3	Ontario	8
Drummond	40	Nicolet	40	Nouveau-Brunswick	1
Gaspé	2	Ottawa	9	Etats-Uuis	1
Huntingdon	35	Portneuf	37	France	5
Iberville	9	Quebec	10		926
Jacques-Cartier	1	Richelieu	32		
Joliette	8	Richmond	25		

MEETING

OF THE

DAIRYMEN ASSOCIATION

OF THE

PROVINCE OF QUEBEC

HELD AT CHICOUTIMI

The 19th and 20th August, 1896

ANALYTICAL REPORT

MORNING SESSION OF WEDNESDAY

The session opened at 10.30 a. m., in the great Hall of the Seminary of Chicoutimi, which was kindly placed at the service of the association. M. l'abbé Montminy, the President of the Association took the chair. A great number of delegates was present.

TOUR OF THE INSPECTORS-GENERAL OF THE SYNDICATES, THROUGH ONTARIO

M. Élie Bourbeau.—Gave an account of his tour through Ontario, accompanied by his assistant, M. J. A. Plamondon.

The report of M. Bourbeau will be published in full in the report of the Joliette meeting.

SYNDICATE FOR MAKING SALES

After a short discussion on M. Bourbeau's report, M. Jos. Girard, M.P.P., stated that, in his county there was a syndicate for the sale of cheese; at the first sale, he had nothing to communicate to the syndicated, as regarded bids from the Montreal buyers, but bitter remarks on the fact that their organisation and the condition of sales would prevent the sale of the cheese. However, the syndicate

succeeded in selling their cheese in another place than Montreal At the fifth sale, the cheese was bought by a Montreal firm, that agreed to take delivery of it, weight and quality accepted, at Lake St. John.

M. E. Bourbeau.—Then spoke of the look of cheese, and the importance of its being well turned out as regards the cloths and packages. He stated that, in Ontario, those details were attentively studied.

Before adjourning Mr. Barnard rose and showed how successful the meeting had been, thanking the farmers of Chicoutimi and of Lac St. John for their earnestness, and congratulating them on the fact that they showed by this that they thoroughly understood their own interests.

AFTERNOON SESSION

M. J. C. Chapais, Asst. Commissioner of Dairying.—Gave an address on "Meadows and Pastures," which he repeated at the Joliette Convention, in the report of which it will be found.

M. L. T. Brodeur.—Began by paying a deserved compliment to the Chicoutimi farms. He did not expect to find the soil so good or so adaptable. The celebrated farms of the country of Bagot are not superior to those he had seen in the neighbourhood of the town. He was positively astounded at the yield of the crops.

If the farmers of Chicoutimi wanted to be pitied by the farmers of the rest of the province, they must not get them to come and look at their land. The soil is indisputably fertile; it only remains that the farmers should bring out its capabilities to the utmost.

Of course, if one is determined to criticise, one can always find something to censure. The roads, for instances, are not what they ought to be, but *A Road-Machine*, was seen by the speaker at the station. If they tried this carefully, they would, before long, feel that they could not get along without it; when once the roads were improved, they would feel that it was time to improve the hills. No one can exaggerate the value of good roads; they are, speaking seriously, an indication of good farming; a farmer that keeps his roads in good order may be fairly supposed to do the same with his crops. When once a road is well made, it is easily kept in order, even without using the machine; for the *scraper* will answer the purpose.

St. Hugues, Bagot county, where the speaker resides, is renowned for the goodness of its roads, and hardly anything but the *scraper* is ever used. If the lecturer could hope that his few remarks would have the effect of improving the Chicoutimi roads, he would feel happy in having made the journey to that place, and would not consider his time mis-spent.

The lecturer then sang the praises of agriculture, a business that he was proud to say was his. He knew that all the other classes of society had their eyes fixed on the farmer, on whose exertions they depended for their subsistence. True, the times are hard, but farmers must not be discouraged; many of the products of the farm no longer give the same returns they used to give; they must study, gain information, frequent the Farmer's Clubs and meetings, and read the *Journal d'Agriculture*. In these pursuits, will be found novel methods more economical than the old methods.

People must not say: "Oh! that plan won't answer," and do nothing; they must "make it answer."

Since it seems that the farming class, like the other classes of society, is determined not to diminish its expenses, it must contrive to increase its production. No use, complaining; but get to work and produce one-third more milk at a less cost; grow more bacon-hogs, etc.

Instead of being discouraged at the low price of pork, one of the lecturer's neighbours had just altered his mode of fattening, and now asserts that he can make as much profit with pork at $4.50 to $5.00, as he used to make when pork was at $6.00 to $7.00. He gives his hogs one-fourth less grain, and makes up for it by giving them green-fodder, clover, corn, tares, and skim-milk. For the purpose of keeping up his system of green-fodder for hogs, he sows corn at several intervals in July; he has even sown it as late as August 2nd. And treated thus, he finds his hogs pay him at $4.00 to $5 00 a hundred.

The climate of Chicoutimi was, in his opinion, far superior to the climate of Bagot, as regards dairying. The farms were more suited to pasturing, and were not so dear as those in the older districts of the province.

The lecturer is not always required for our instruction; very often, a man with a little pluck will do, for he will not be shy of reminding the careless of things that they neglect: what numberless great and valuable duties are left undischarged, for want of some one to make us think about them.

One thing is often forgotten: the need of outlets for water; is there one farm in 25, in 50, where the land is perfectly drained?

One benefit of lectures, one that is generally ignored, is to provoke discussion. Sometimes, discussion borders on censure: well, that does not matter, for a great deal of good often springs from it, especially if three or four neighbours combine to criticise the lecturer, and then go and verify on the farm of one or the other of them the faults or blunders that were pointed out in the lecture. Mr. Brodeur drew the attention of his hearers to a spot in a farm that he had remarked as needing drainage. He pressed them to go and look at it, and to discuss among themselves the best way to make it dry, when it would be one of the best corners on the whole farm.

Another point many farmers did not appreciate at its true value was the necessity of preserving and using properly the very last drop of their manure; the

lecturer observed that he said *the last drop*, so that they might not forget that the urine is the richest, the most valuable part of the manure. He then described the different ways in which it was possible to preserve the whole of the urine.

This duty of thoroughly draining, manuring, and ploughing, is the very A. B C. of the farmer's business ; but how many of them neglect these elementary principles.

The lecturer concluded by saying : no drains, no dung, bad ploughing : result, no crops. And, he added : no cows, no dung ; hence, dairying is the basis of all good farming.

Mr. Robert Ness then addressed the meeting, in French, relating a pleasant story, to show that he agreed with the opinions of Mr. Brodeur. He also observed that farmers did not take the best way, *to make the two ends meet* ; too frequently, said he, expensive implements only last six weeks, that is to say, two seasons of three weeks each, as is often the case with the mowers, which are allowed to remain out of doors throughout the winter, buried under the snow, and exposed to all the inclemency of the seasons. He then gave some explanations of the method of working the *road-machines* and the great advantages to be derived from their use.

The session adjourned to allow the delegates to visit the road-machine, but Mr. Ness previously impressed upon them the fact that the machine was about to be tried under awkward conditions, since the horses that were to draw it had never been harnessed together, and the engineer was utterly fresh to the work.

In spite of these inconveniences, the machine worked sufficiently well to manifest its utility, and the lookers on were very much struck with the advantages to be derived from its employment.

SESSION OF WEDNESDAY EVENING.

At the opening of the session, the Sheriff of the county of Chicoutimi and the President of the Agricultural Society, each read an address, welcoming the Dairymen's Association to their county.

After the reading of the addresses, the Revd. abbé in the chair, in earnest and fitting terms, thanked the citizens and the members of the Agricultural Society of the County of Chicoutimi for the good feelings that had been expressed in their name towards the Dairymen's Association, and for the eulogiums that had been pronounced upon it.

These eulogiums are not undeserved ; the association indubitably exercises a useful influence as well as a beneficent action ; but this influence and this action have been exercised under the kindly auspices of the Department of Agriculture, with the aid of the Canadian clergy, who have powerfully seconded its efforts, through the means of its directors and lecturers. Wherefore, the praises of the people of Chicoutimi are due to the Hon. the Commissioner of Agriculture, to the Canadian Clergy, to the Dir ctors of the Dairymen's Association, and to its lecturers.

The Chairman then opened, officially, the Convention ; not by the usual speech, an abstract of the labours of the year, but by a short address, in which he explained that this was not the ordinary convention of the association, but an extra meeting.

The people of Chicoutimi had been for a long time pressing the association to hold their annual meeting at their town ; but in order to enable the butter-and cheese-makers, as well as the syndicate-inspectors and others, whose summer-work keeps them busy, to be present, the rule has been to hold this meeting in winter. Now, it was the general wish of the members of the association ; of those who were inhabitants of the county of Chicoutimi as well as of those of the rest of the province ; to give the delegates an opportunity of visiting the fine farms of Chicoutimi and Lac St Jean, when attending the convention ; and this is the reason, why, at the Waterloo meeting, the board of directors, at the instance of M. J. D. Guay, the director for Chicoutimi, decided to hold this extraordinary convention.

The members of the association are filled with regret to find illness prevents Mr. Guay from being present. They hope his health will speedily be re-established, and they gladly bear witness to his zeal in the promotion of the interests of dairying in the county he more immediately represents on the board of directors. (Applause).

The speaker congratulated the inhabitants and farmers of the county on the number present at the meeting ; they cannot fail, he said, to reap much precious information from it, both as regards farming in general, and dairying in particular. (Applause).

Many ladies, specially invited, were present at this evening session. This was an agreab e innovation, one, no doubt, that will be followed elsewhere with no less profit than pleasure.

NOTES ON DAIRYING IN NORMANDY.

M. Albéric Forest.—It is with pleasure mixed with timidity that I address this grand meeting.

With pleasure, did I say ? Am I not fortunate, indeed, having met with many of the leaders of the farming of Canada, to have succeeded in interesting them by some comparison between your method of dairying and that of France.

It is, doubtless, to this exchange of views that I owe the invitation to be present at this meeting. And I would especially thank M. Taché, for it is to him, I think, that I am indebted for this honour, which places me in intimate connection with you to-day, and, in consequence, enables me to study more intensively than I have heretofore been able to do, the methods of agriculture pursued in this country. I said, Ladies and Gentlemen, that my pleasure was mingled with timidity ! What else can I say, after all that you have heard ? Must I not be afraid to speak to you about things that you, perhaps, understand better than I do ? And, Mesdames, must it not be with a certain degree of dread that I address you, who, for the most part, possess long practical experience, all those industrious habits, and that refined intelligent

mind of the Canadian woman so well known throughout the whole world, and so thoroughly appreciated by your very lucky husbands.

But, I beseech you, Mesdames, grant me an indulgent hearing !

It would be rash on my part to attempt to give you advice, after what I have seen in your grand country ; I will limit myself to a faithful account of our Norman methods, and I shall deem myself fortunate if the development of these methods shall prove capable of interesting you.

For a long period, dairying in Normandy has been very successful, and if this success has of late been getting less marked, the reason, in my opinion, is the competition that some other parts of France have entered into with us in the French market, as well as the competition we have had to sustain with Denmark on the English market. The butters of these countries have never equalled in price that reached by Normandy fresh-butter ; but the great quantity produced has certainly lowered the general market price.

An accusation of using a mixture of magarine with their butters has been launched against certain districts in France ; and I must confess that some dealers have erred in this manner ; but they have been severely punished by the law, and still more severe laws have been enacted against this practice by our Chambers ; so that I can affirm without fear, that for the last three or four years, no such adulteration has been practised.

The butter made in the district of Isigny, where I live in Normandy, frequently sells for as much as 60 cts. and even 80 cts. a pound. I dare not predict that the time will come when you will be able to get the same price for your butters, but I dare assure you, if you follow the good farming practice taught you by your eminent professors and agricultural lecturers ; if you try in your cultivation certain of our Norman methods ; if you bestow on your meadows, your cows, your dairies, the minute care that I have seen bestowed elsewhere ; my practical knowledge of agriculture assures me that you will be able to make here as good a quality of butter as that made in France.

But what is the use, you will say, of our making extra good butter, if the price remains the same ? To this I reply : Our Isigny butters are sold to the wealthy classes of France and England ; every court in Europe, and the aristocracy of the old countries buy them. Have you not in the States, in Canada too, another aristocracy, the aristocracy of wealth, composed of millionnaires, which, as regards money, is in no degree inferior to the aristocracy of Europe ? Truly good products are always appreciated by connaisseurs, and it will certainly be so here as it is in other places.

It is indisputably the case, that the chief reason for the great favour the Isigny butter meets with lies in the flavour and the special aroma that are appreciated everywhere. This aroma is exactly the same as the flavour of the Iris (The sweet-scented flag—*calamus aromaticus* A. R. J. F.), the root of which is sometimes used in washing the milk-pans. The flavour the Isigny butter leaves on the palate is a

true *nutty flavour*. I firmly believe that, by imparting to your butters this aroma and flavour, you will, even if you do not at once reach the prices I have mentioned, at any rate sensibly increase the prices you have been receiving up to the present time.

There is such a similarity, I have observed, between your climate and ours; although the winter here is longer and more severe than ours, yet the *flora* of both countries is so much alike; the plants that grow here being the same as those that flourish in Normandy; your soils are so much like our soils, that I declare without hesitation that, as regards dairying, the same practices may be employed here as are employed in Normandy, with the same results, provided the same precautions are put in force in the one country that are put in force in the other.

And what are these precautions? In my opinion, they should apply to:

1.—The management of the pastures;

2.—The growing of crops for milch-cows;

3.—The cowhouse, and its tenants, the cows.

In Normandy, a good herd of cows is considered to be the first condition of success. Every one of them must be superior milkers; and it is also thought necessary that they possess aptitudes for fattening easily when their milking time is over. As soon as, from different causes, often unavoidable, the secretion of milk is arrested, the cows are at once fattened off, so that no useless cows may exist in those herds that are chiefly kept for the production of milk.

In this address, I shall only treat of the management of the herd and the dairy as practised in Normandy.

The milch-cows are sent to pasture in natural permanent meadows containing about 10 arpents in superficies (each?). They pass the night in the meadows, and are only housed towards the beginning of December, remaining in the cowhouse till March; but, as often as possible, in winter, they are let out for five or six hours in the middle of the day, unless the weather is too cold and rough. I do not think this is practicable here; your winters are too long and too severe to admit of it. However this may be, your long and severe winters do not seem to me any obstacle to your producing plenty of milk during that season, as the resources of your farms enable you to grow abundant crops of roots. These are the basis, in Normandy, of all winter feeding, and added to your maize, bran, and meals, would, with your best hay, return you large profits.

Our Norman cows, in spring, summer, and part of autumn, live exclusively on the grass growing on natural permanent meadows. In winter, their food consists of very good hay, roots, such as mangels or carrots, but chiefly of red carrots, bran and barley-meal, beans (horse-beans), and oats. The meals are mixed, in varying proportions, with the roots.

Cotton-seed cake and linseed cake, distiller's grains from corn, beet-pulp, are sometimes used in Normandy, but our people in the Isigny district shun them most emphatically, as practice has shown that these stuffs contain a certain quantity of

essential oils that alter the aroma and flavour of their butter. I found this to be true in some experiments I once made in the use of these foods.

At any rate, in summer as in winter, the cows in Normandy are invariable fed most abundantly, and every careful farmer keeps on his farm a reserve of green-meat for summer, and a still greater reserve of roots for winter-use. There is no silage of maize made in Normandy. This depends upon three things : corn does not ripen thoroughly ; it costs more to grow than roots ; and the taste and smell of the silage seemed, in some trials of it that were made, to impart an inferior flavour and aroma to the butter and cheese.

A good Norman cow averages a yield of abont 48 lbs. a day ; and this is attained without difficulty in a good herd, well fed on good pastures. Cows are seldom milked longer than ten months after calving, and a cow that no longer yields 22 pounds of milk, is thought to be at the end of her profit, as a milker, and to be only fit for fattening.

If the care taken of the Norman herds is the first reason of their success, that which follows immediately, i. e., the careful management of the dairy itself, is not less important. Some of your members having requested me to give you a description of this management, I will describe it as fully as possible. But before entering into these details, which consist chiefly in the practice of a refined cleanliness, I mean to offer you some other information that you may perhaps find interesting.

The cows are, in general, milked by women three times a day, each woman is kept on the farm for every fifteen cows in the herd. In summer, the cows are milked at 4 a. m., at 11 a. m., and at 5 p. m. In winter, the first milking is done at 5 a. m. The cows being always milked in the pastures, asses are used to carry the milk to the farm, each milker having one at her command.

On arriving at the farm, the milk is carried into a special place attached to the dairy, where it is strained into earthenware pans, formed like a truncated cone reversed, and holding four or five gallons each. These pans are at once taken to the dairy, where they are placed on a double row of shelves, made of cement, marble, or other hard material.

Two or three times a day, according to the temperature, the milk is skimmed with large spoons of tinned metal, but the moment there is the least signs of curding, the milk is taken from the dairy and given to the calves and pigs, from which a good deal of profit is derived. It is not rare for farmers to average $40.00 a head for their calves at five or six months old, such calves having had hardly any other food than the curdled milk produced on the farm.

The duty of skimming is peculiar to the farmer's wife. After such skimming, the cream is placed in earthenware pans, and the cream of three and a half days is mixed and churned. Thus, butter is made twice a week. The butter is made up in lumps af about 20 lbs. each, and is sent off the same day, either to Paris, or to the local markets, where it is bought by the great export-merchants, to be despatched from their works, frequently on the very day of its arrival, never later than the next day,

either to England, whither go immense quantities, or else it is spread over the whole of France. Whether sold in France or in England, these butters are never salted, except in the case of a few sent to England that are of inferior quality; for the finest butters we send thither need no salt, and fetch the highest prices of all exported.

Now, let us notice the careful way in which cleanliness is attended to in every good Norman dairy: First of all, perfect cleanliness is insisted upon in all the milkers and in all those who do general dairy-work. One of the servants, selected for her intelligence, is more particularly attached to the mistress, to aid in the most delicate operations of the dairy. The care of the calves and pigs are divided among the other servants.

The cans are made of tinned copper. As soon as the milk is strained into the pans, the cans are rinsed in cold water, then in hot water, and well rubbed with nettles, green in summer, dried in winter, the plants being carefully gathered, and kept for use in winter. Two rinsings complete the process. The cans are then hung up, the mouth downwards, in a dry cool place, generally in a airy passage, near the dairy, whence they are taken when required for the next milking.

The same care is taken with the pans that hold the milk and cream, and they too are hung in a cool airy place like that described above.

In winter, more particularly in damp weather, all the earthenware pans are placed for some minutes over a gentle charcoal fire, to destroy any remaining traces of an odour characteristic of milk, that hangs about a long time in damp weather. Thus, as M. Jourdain, in the Bourgeois Gentilhomme, spoke prose without knowing it, so, the Norman farmeresses, many a year before Pasteur, pasteurised their milk without knowing it.

The churn, always barrel-shaped in Normandy, is worked by some motive power; steam, water-wheel, but generally by horse-power; is as carefully looked after as any other part of the apparatus. As before, it is cleaned, as soon as the butter is withdrawn, with cold and hot water, rubbed with nettles, and well rinsed out; the outside is washed with lye from wood-ashes. It is never painted.

In Normandy, great attention is paid to the construction of the dairy. It has almost invariably a northern aspect, back to back with another building, generally the farm-house, that keeps off the sun; and thus situated, the windows look to the east, the north, and the west. The walls are very thick, and the floors and inferior partitions are all white-washed with lime.

It has been discovered that the use of plaster is very injurious; this I attribute to the essentially hygrometric state, which must keep the building constantly damp, a state of things that must be positively avoided in a dairy. Nothing gives a better footing to injurious microbes than a damp condition either of the dairy, or of the apparatus that is used in the working up of the milk. So, the dairy is hardly ever washed out, and even when it is, a very dry time is used for the operation. If a drop or two of milk should accidentally fall on the floor or the shelves, which latter, as I said, are made of cement, marble, or other hard material, the drops are

immediately wiped up with a sponge, and the spot thoroughly dried with a very dry cloth.

Shoes, kept entirely for the purpose, are worn by the dairymaids, and these are never used anywhere else, not even in the adjacent places.

Perhaps, you will make this reflexion ? " Well, he is a pleasant sort of a man, this Frenchman ; but he does not know how difficult it is to get work-people here: how on earth can we manage; with all the trouble we have to get dairymaids here; to devote so much care to the work ! " " Alas ! I know all about this trouble. But is it a reason why we should not try to improve ? I do not think so.

Faith, it is said, can remove mountains. When a man says : *I will it*, and the man who says it is a man of strong mind ; if he does not actually cause the mountain, difficulty, to move, does he not fundamentally alter its aspect ?

Consider the admirable work done by the Father Trappists at Oka ; look at your own dairy-trade in this province ! Do you not see how for many a day your government, the Oka Fathers, your Dairymen's Association, must have had men who have said : *I will it !* What a stir, what a change has followed this determination during the last 15 years ; and what grand results have flowed from it.

Oh ! Ladies and Gentlemen, although my intention, at starting, was, as I told you, not to intrude my advice upon you, let me say that I fancy I see more clearly than you do these grand results, and even should I be liable to be thought imprudent by my countrymen in thus speaking, I must frankly render homage to merit, wheresover it is found, and I tell you, with perfect sincerity, that you have here resources of the most immense, inexhaustible nature.

You have here men who "*will* : " men whose will is of iron, and who are leading the march of your dairy industry along the path of progress with giant strides : " ***Hesitate not ; Follow them.***" Long applause followed M. Forest's address.

" *M. J. C. Chapais.* " asked M. Forest to explain the effect the three times a day milking had on the quality of the butter. The lecturer replied that, as the Norman cow gives a large yield of milk, she is liable, when only milked twice a day, to congestion of the udder and even to inflammation ; and, even if the attack does not proceed to such a length, it is bad enough to communicate to the milk a certain fever that lessens the quality of the butter ; he himself had lost, by its effects, as much as 15 cts a pound.

Mr. Barnard related that experiments at the Hôtel-Dieu and at the Sacred-Heart at Quebec, confirmed the advantages to be gained from triple milkings, both as to the quantity and quality of the milk.

Mr. Jos Girard, M. P. P., Lac St-Jean, was then asked to address the meeting. He said that he was happy to profit by this occasion to express the satisfaction he felt at seeing the Vice-president of the Dairymen's Association raised to the position in the Dominion government of Minister of Agriculture. He proposed the following resolution ; " That the Dairymen's Association has observed with pleasure the appointment of its vice-president, Mr. Sydney A. Fisher, as Minister of Agriculture

at Ottawa, and hopes that in his new and lofty duties, Mr. Fisher will continue his good services to the Association and do his best to aid it in its work in the province of Quebec."

"And that a copy of this resolution be forwarded to the Hon. Sydney A. Fisher, Minister of Agriculture, Ottawa."

The resolution was seconded by M. Wm Tremblay, president of the Agricultural Society of Chicoutimi, and carried by acclamation.

Mr. Wm. Tremblay then asked that the Dairymen's Association, in conformity with the request contained in the address of the Agricultural society would be good enough to take into its consideration the following resolution :

"It is proposed by Messrs Wm. Tremblay, president of the Agricultural Society of the county of the Chicoutimi, Arsène Gobeil, Mayor of the parish of Chicoutimi, and Jos. Girard, M. P. P, (Lac St. Jean), and seconded by MM. Paschal Bergeron, Sheriff of the county of Chicoutimi, L. P. Godin, O. Côté, and E. Boivin :

"That the Dairymen's Association, assembled in convention at Chicoutimi, expresses a hope that the honorable the minister of Agriculture at Ottawa would be pleased to take the necessary steps to ensure as soon as possible a regular service of refrigerators on the Ocean steamers, with a view to facilitate the exportation to England of all agricultural products that require the aid of cold storage to arrive in a state of perfect preservation on the English market."

After a few explanations from "Mr. Milton Macdonald, M. P. P.; who, in his quality of director of the Association formed part, with MM. Taché and Castel, of the delegation of the association to the meeting got up by the Montreal Board of Trade's Butter and Cheese Association, in order to submit to the Premier the views of the trade on the refrigerator question ; the above resolution was carried unanimously.

Mr. Milton Macdonald then addressed the meeting, saying that he regretted not to have been fore-warned that ladies would be present ; for, if he had known it, he would have prepared a lecture on the fashions, and advocated the abolition of large sleeves. But, not being ready to treat such delicate questions, he would revert to agricultural matters, and, especially to dairying.

He recalled the origin of the question of refrigerators, and the leading part taken by the association in the struggle that was closed eighteen months ago by the granting of a premium on export-butter, and the organisation of a refrigerator-service on both the railroad cars and the ocean steamers. Incidentally, the speaker enlarged upon the subject of the dairy-comices, held by the association in the different districts of the province, where resolutions were passed asking for the premium and the refrigerators, and mentioned the delegation, of which he and M. Taché formed part, that was sent to Ottawa to present these resolutions to the minister of Agriculture.

After Mr. Macdonald's speech, M. Jos. Girard, in the name of the Rev. Ursuline Sisters of Roberval, gave notice of the speedy re-opening of the school of domestic

economy. He was happy to announce that the people of Chicoutimi had entrusted him with the disposal of a half-scholarship (demi-bourse) in favour of a young lady of that county. (Repeated cheers).

SESSION OF THURSDAY MORNING.

The Rev. abbé Montminy opened the session at 9.30 a. m. The *Question-box* was opened, and eleven questions were found in it, the discussion of which was placed under the control of Mr. Ed. Barnard.

First question.—Would it not be better for the cows to be *en repos* (i. e., not giving milk.—Scotch, *eild ;* no word in English but *dry*. A. R. J. F.) during the season of the gad-fly and mosquito, and of weeds that convey bad flavours to milk. rather that in winter ?

Reply.—For many years the question of winter-dairying has been under study. The Danes have resolved it satisfactorily, and, doubtless, it would answer as well with us, if the proper precautions are taken, namely, that the cows calve at a proper season ; that the food prepared for them be favourable to the abundant and economical production of milk ; and that the milk be so attended to that it acquire no foreign or animal smell.

Second question.—Would it not be advisable to establish a creamery in the centre of two or three new parishes, with skimming stations in the more distant ranges ? Would not such a system as this enable a good factory to keep at work during the entire year ?

Reply.—The question of skimming stations elicited a rather excited discussion, in which took part MM. Brodeur, Barnard, Leclair, Chapais and Castel. Favourable, as it was, *in principle*, to the skimming stations, the meeting appeared inclined to condemn them *in practice*, because they are, but too often, managed by in experienced youths, who do the skimming carelessly, and do not take care of the cream. The difficulty is, in these stations, to afford to pay a competent man a good wage. The really competent man soon learns how to make butter, and is soon able to manage a regular creamery, which means a higher wage. It is very difficult to find men capable of properly managing a skimming-station.

LECTURE BY M. ED. A BARNARD.

OUR WEEDS.

Have you ever calculated, Gentlemen, how much the weeds in our fields cost us ? Does it seem possible to you that they consume at least half the value of our crops, and that every year ? Do you ask how that can be ? The answer is easy ; being stronger, more robust than the cultivated plants, they are satisfied with a poorer, less pulverised soil, and invading our land in crop, they smother and take the place of a considerable share of that which we have sown at a considerable expense.

THE INJURIES THEY CAUSE.

As for the sum of the damages done by weeds, it is enough to horrify any one who will study and ponder it. Wherever the land is perfect clean and well worked, our sown crops are vigorous. The crop, then, is proportionate to the richness of the soil. On the contrary, if the weeds shoot up, they seize upon the fertilising matters present, to the injury of the useful plants, and before long, overpower and choke them. The richer the soil the more injury do the weeds cause. Not rarely do they become the absolute sovereigns of the land. In this case, the damage they do is incalculable. In general, one may say, without exaggeration, that in this province, one half of our crops is destroyed by weeds.

THE FARMER'S WORST ENEMY.

If any one had, not the right, but the power, to enter our fields at the moment of harvest, and to seize upon half the crop, should we not be justified in invoking curses on the robber ? And if the mass of the farmers in one special parish, of one special country, had to submit every year to such an invasion, what would they not do with one united struggle, to protest and defend themselves. Now, it is proved to demonstration that weeds are, in almost every part of this province, absolute monarchs in our pastures, roads, in the corners of our fields, in our ditches, and even in our meadows and grain-fields. Too often, they invade our gardens and hoed-crops. Every good farmer doubtless turns them out, particularly at harvest time. But then, either the seeds are ripe and have sown themselves, or the roots are still vigorous, and soon the plants regain their force, and ripen their seed before the season is over.

ONE YEAR'S SEEDING—SEVEN YEARS' WEEDING.

Every good gardener will tell you that a garden, in which weeds have been allowed to ripen their seeds freely, for one year, will require seven years hoeing to clean it. This is especially true of land that has been liberally manured. The more such fields are worked, the more freely will weeds of every kind spring into vigorous life, to the despair of the earnest farmer. Ask, as an instance of this, the Trappist. Brothers at Oka what it has cost them for hoeing etc., in their gardens and orchards, that were partly cleared long ago by the Indians ; or, ask the first gardener you meet. All will tell you that land filled full of weed-seed is the despair of the farmer who attempts to clean such a soil.

A PROVIDENTIAL LAW WORTH CONSIDERING.

The preservation of certain seeds during indefinite periods, remaining, as they do, buried in the soil, is a providential law that ensures to the land perpetual vegetation. Each plant has doubtless its utility, its precious qualities. Still, as regards the farmer, every plant the seed of which has not been sown, but which has intruded

itself into a sown field, is rightly considered a weed. He must then take measures to preserve those plants that are of use to him, and destroy the others.

THOROUGH HOEINGS DOUBLE THE YIELD.

In well farmed countries, farmers always take care to provide plenty of hands to carry out the work of the cropping they plan for. This is an agricultural rule that must never be forgotten in practice. In accordance with this principle, the farmer arranges beforehand and so harmonises his various labours, that his men have work on the farm throughout the whole year. In this way, the fields are hoed and cleaned, each in its turn, so that the weeds never gain the mastery, and the crops are at least doubled in yield throughout the entire rotation.

LEGUMINOUS PLANTS,

Many pod-bearing kinds of plants, such as pease, beans, tares, etc., should be grown. They are all smothering crops, strong in growth, taking their nitrogen from the air, and as soon as they find themselves in suitable soil, they take full possession of it, instead of allowing weeds to occupy it and live at the expense of the proper denizens of our farms. The leguminos-æ even leave the land richer than they found it, provided they are supplied with a fair amount of lime, phosphoric acid, and potash. These mineral manures, indispensable though they be to all these crops, are not costly. By means of them, the leguminous plants are enabled to appropriate freely the nitrogen of the air, and that, not only in quantities sufficient for their own needs, but, also, for the needs of their successors.

OUR AGRICULTURE.

To every intelligent, reflective person, weeds must seem to be, in this province, a real scourge, a cause of absolute ruin. It is positively certain that the greater part of our farms have never been hoed and cleaned, even once, since they were cleared from the bush. Is it, then, wonderful that couch, charlock, (1) ox-eyed daisies, thistles, wild chicory or indive, and a thousand other weeds, according to the nature of the soil and climate, should have invaded our fields and established themselves in them permanently? And the worst of it is, they keep on increasing in number yearly. Year by year, the average yield of our crops is diminishing. It is not that industry or intelligence are wanting. What is it then? Let us state the reason boldly, forcibly, and repeatedly: Our farmers, in general, have a great deal more land under cultivation than they can find means and men to cultivate properly. This is a national misfortune; absolutely ruinous. If we except the market-gardens, farms close to large towns, and those belonging to factories, there are not **10** per cent of the cleared land sown with hoed-crops.

(1) Called, by various names in different parts of England: Charlock, cadluck, kilk, wild mustard, etc., A. R. J. F.

How, is this terrible evil to be obviated ? The first thing is to sow no more seeds of weeds ; next, the pastures and the fence-corners, headlands, roads, must be looked over with the scythe carefully, and the weeds destroyed, even in the early stages of our growing crops. A second mowing, later in the season, will prevent all the weeds from ripening their seeds. That accomplished, we must adopt a system of cropping that will admit of the field being cleaned, each in its turn, even those most distant from the house. Then, lastly, those who have more land than they can farm properly, must try to find out means whereby they can obviate such an evil as this undoubtedly is.

WEEDS IN MEADOWS.

There are two ways of destroying weeds in meadows : The first is simple enough ; it is to mow the foulest first. If the soil is good, or if it has been well manured, two crops of hay can be secured, and the weeds, not being able to ripen their seed, the daisies, thistles, wild chicory, and a thousand other plants more injurious than beneficial, will disappear at last. And more ; these weeds having been mown while they were still succulent will be in great part eaten by the stock in the winter.

BREAKING UP MEADOWS IN SUMMER.

After having made hay on the foulest and most exhausted of the meadows, every good farmer ought, every year, to break up in the hottest weather, as much of them as he can manage to follow during the fine weather. The various operations I am about to treat of will be carried on at odd times (Scoton : "an orra time,") and will keep the horses at work at a season when they usually have nothing to do. Besides, by constantly stirring the land when the sun is most powerful, during the longest and hottest days, the root-weeds will be thoroughly eradicated, all the vegetation utterly dessicated, and the land be made perfectly clean.

The first summer furrow, in meadows and pastures, should be very shallow, not more than 3-inches deep, and for this work a pair of middling sized horses will be amply sufficient, provided that the plough is in proper order and the irons sharp. A fortnight afterward, pulverise the land thoroughly with the harrows, and in ten days run the grubber over it, or the springtooth harrow. If this work has been done when the sun is in full force, most of the weeds, will now be, in great part, dried up and destroyed. The next furrow should be deeper, so as to work up those plants the roots of which penetrate the soil more deeply ; then, harrow and grub as before. Every field treated thus, in the heat of summer, should be perfectly clear.

Before the end of autumn, plough the land deeply, and water-furrow it carefully wherever water-furrows are needed. This field, treated in this fashion, even if it used to be the least productive on the farm, will now be the best, or one of the best, particularly if, the following year, a fair dressing of manure can be spared for it.

It is by such treatment that, in the neighbourhood of towns, the land is prepared for cabbage, maize, and other exacting crops. These being planted in rows, hand-and horse-hoed several times, the land will remain clean for several successive years, and will yield large returns, especially after a good dressing of dung.

CLEANING STUBBLES, AND BASTARD FALLOWS

This method of breaking up foul meadows possesses a signal advantage over the stubble-cleaning of grain-fields after harvest. As meadows can be mown when very green, they can be broken up from four to six weeks before the stubbles are clear. Now, these four or six weeks, during the hottest season of the year, give one a greater chance to perfect the cleaning of the land. Still, the stubble-cleaning of fields, intended to bear leguminous and hoed-crops the following year, cannot be too strongly recommended. The farmer who will practise it regularly, every year, on one or two fields of grain, selecting those that are the foulest and least mellow (i. e., least cultivated or worked—*ameublies*,) will find it a source of great profit, by the increase and excellence of the crops they will yield. As to the operations to be carried on in stubble cleaning, the only difference between them and the breaking up of meadows is that, in the former case, the grubber and harrows must be used, before the plough, as soon as the crops are carried, while, as we saw, the plough as to be used to turn over a shallow furrow before the other implements can go to work. For the rest of the proceeding, it is the same in both cases.

HOED FODDER-CROPS

I cannot too strongly recommend a trial of the cultivation of hoed fodder-crops, which, after the breaking up of a meadow, or of a stubble, will, in a surprising manner, increase the quantity of cattle-food, while preparing the soil to give splendid grass, whether in pasture or in meadow. The great want, among farmers in general, who wish to grow hoed-crops, is manure. But, if legumens are concerned, such as pease, beans, haricots or horse-beans, by growing them in rows and horse-hoeing them two or three times, a capital crop can be secured if the land has been thoroughly cleaned; the following year, the grain-crop will be a very fine one, and good clover and first-rate hay-crops will succeed for several years. Of course, such desirable results infer that the land is either naturally rich, or that the legumens have been treated with potash, lime, and phosphoric acid. In spite of these commercial manures being little costly, they are amply sufficient, since all kinds of legumens possess the intensely precious property of imbibing from the air all the nitrogen the land requires even for several successive crops. This is a fact but little known in this province; but it is absolutely correct, since in all well farmed countries the results I have described are obtained with certitude. So, there is nothing more important for our country than that a trial of this should be made in every parish, and that without delay.

MANURED HOED-CROPS

Maize and all roots crops demand an application of *complete* manures, of which dung should form the basis. We shall omit any description of these crops, for they need special treatment. But I need not say that stubble-cleaning, as mentioned above, is the best preparation for all sorts of hoed-crops. I have laid great stress on cleaning-crops. They are indispensable to all really paying farming. But, to tell the truth, it must be confessed that *our farms are too large.* It is impossible, with such large farms, to be fully supplied with laborers during the working season, because men are too difficult to hire here. The cure for all these evils consists in rearing good farmers, who can support their families on a small extent of land, and that by having learnt how to cultivate it to perfection. This is the most important improvement to be introduced into rural districts.

THE RE-PEOPLING OF OLD PARISHES

Is still more pressing than the settling of our forests, since a bad system of farming in the old parishes will infallibly repeat itself in the new ones, which, in their turn, will be exhausted as the old parishes have been; while, on the contrary, the restoration of fertility to the old parishes will place them in a position to profit by all great public improvements that a dense and prosperous population always ends in securing for itself.

Then, the roads will indeed be brought to a state of perfection, the farm-industries will be firmly established, and new sources of wealth will be created. When, in the older parishes farming has become really profitable, the new settlements will follow suit, seeing that they have models to imitate, and the entire province will become prosperous in consequence of the improvements that have been made in the methods of our agriculture.

Mr. Barnard's address was received with the warmest applause.

The *secretary* of the association related to the meeting the results of the last *Provincial competition in dairy products;* viz., the cheese competition held at Quebec, August 5th.

Silver Medal.	—M. Jean Girard, St-Dominique, Chicoutimi.....	98½	Points.
Silver Medal.	—M. François Brassard, Chicoutimi.....	98	"
Bronze Medal.	—M. Louis Archambault, Grondines, Portneuf.....	96	"
Bronze Medal.	—M. Joseph Bouchard, Eboulements, Charlevoix.....	96	"
Bronze Medal.	—M. G. Samuel Dugal, St-Alexandre, Kamouraska.....	96	"
Prize of $10.00.	—M. Jules Bélanger, St-Alexandre, Kamouraska.....	95	"
Prize of $8.00.	—M. John J. Wales, East Dunham, Miss.....	93	"
Prize of $6.00.	—M. Servule Tremblay, Hébertville, Lac St-Jean.....	92½	"
Prize of $6.00.	—M. George Roy, Arthurville, Bellechasse.....	92½	"
Prize of $4.00.	—M. Herm. Guertin, Ham North, Wolfe.....	92	"
Prize of $2.00.	—M. Augustin Jacques, St-Joseph, Beauce.....	91	"

41 cheeses were judged.

M. Castel explained the advantage and the importance of these competitions as regards the improvement of our method of making. He congratulated the Department of Agriculture on this innovation, and pointed out certain details in the competition that might be altered with advantage.

SESSION OF THURSDAY AFTERNOON.—CLOSING OF THE CONVENTION.

M. J. D. Leclair presented, in the names of Mr. Taché and himself, the report of the judges of the butter competition organised by the Chicoutimi Agricultural Society. He pointed out the good points of the first prize butter, and stigmatised the defects in appearance, colour, and aroma in the other butters, as a lesson to the makers present. Hence, arose a discussion between Mr. Leclair and the makers, from which it was evident that the latter derived much useful information.

M. J. A. Plamondon made the following report on the cheese competition.

Mr. Chairman and Gentlemen,

Having been requested by the committee to make a report on the cheese competition, of which I have had the honour to be one of the judges, I will, for the sake of brevity, enter at once into the subject. I must inform you that the cheese in question was very fresh; even, too fresh. Had it been older, we might have been in a position to assign more points to it:

1. *Flavour.*—Only two cheeses were perfect in this point; the first and second prize winners. Many others only lost half a point; the lowest lost 5½ points. This inferior flavour I attribute to bad milk and defective manipulation.

We often find that curd, that acquired acidity when too soft, retains a taste of whey.

2. *Texture.*—Only one cheese, the second prize one, was found perfect in this respect, where the first prize cheese lost a point, and the worst lost 10 points; in this last, the curd had become too hard, and could not consolidate itself, so the cheese was open in consequence. It was so hard that it was impossible to make out of it a full cheese. Others were too soft; others to open.

3. *Colour.*—Why colour your cheese? If it brought a higher price in consequence, all right! but if there is no difference in price, I advise you to make white cheese, as it is easier to make.

Of 14 coloured cheeses, which we examined, we only found two perfect in colour, and some of the others lost 5 points in this respect.

It is very difficult to make a perfect coloured cheese.

4. *Appearance.*—Only 2 out of the lot perfect, one of which was the 3rd prize cheese. The first prize one lost ½ a point, the 2nd lost 2½. Had the 2nd been perfect as to appearance, it would have obtained the maximum of points. The lowest lost

(1) An *open* cheese is one that is not packed together; *full* is applied to a homogeneous cheese of the same texture throughout. A. R. J. F.

4 points. Sometimes a badly made box, sometimes bad cloths, are the causes of this defective appearance.

You see now how important it is to attend to the look of your cheese.

At Charlevoix, Mr. Bouchard earned 96 points ; he lost 1 point owing to his cheese being too small : about 60 or 61 pounds. But it is only fair to say that he could not make bigger ones, as he only receives 600 pounds of milk a day.

At Chicoutimi, the two that won silver medals lost a point each from disregard to looks. At the Chicago show, there was a cheese that would have won the maximum of points, only it lost a point for the same defect.

Two makers each lost ½ a point, in flavour, and a point, in package. Had the appearance been right, they would have won the maximum of points.

Now, I am about to tell you something that grieves me, but it may be useful to you to hear it. In my rounds, at Richmond, I found that the majority of makers were from Ontario, and, I must say, they, without exception, were making better cheese and kept their factories in better order than their French-Canadian brothers. Such was the difference, that it struck me immediately on entering one of their factories. To my regret, I must acknowledge that, in the syndicate, the Ontario cheese-makers turned out much better goods that did the French-Canadians. As to the superiority of the Ontario cheese to that of Quebec, I am bound to say that in many places our men make better cheese than is made in Ontario. For instance, at the Ste-Anne factory opposite this place ; at different factories in Chicoutimi, Charlevoix, Richmond, Rimouski, and Bonaventure. Even in little parishes, like St-Alexis de Métapédiac, Ste-Angèle de Rimouski, I found much better cheese than I saw in Ontario. Thank goodness, we need not go thither to find good cheese, for if you will come to our shop, I will show you there cheese much better than any that I saw in *Ontario.*

M. Castel.—The judges have told us that they have seen in this competition cheese of much finer quality than that they met within the factories of the very same exhibitors. This is because the makers do not appreciate the intention of these competitions or their own position, neither do they see that the season of making is nothing but one long competition, in which the English buyer is the ultimate judge, and in which the prize consists in gaining as a reward preference on the market. The contest is by no means the same as that at our provincial competitions ; it is one the importance of which should be constantly before the eyes of our most unimportant maker in the most far-removed of our factories.

M. Wm. Tremblay then related the efforts that were being made at Chicoutimi to place the butter and cheese of the Saguenay on the English market directly, and under its own proper name, and the success that this first attempt at this mode of exportation had met with. The applause that greeted this announcement proved to M. Tremblay, the makers, and the patrons of the Chicoutimi creameries and

cheeseries, that their attempt at emancipation is generally approved, and that public opinion is in their favour.

In order to show the meeting the vast importance of farmyard manure, in agriculture, on which MM. Brodeur and Barnard had already insisted, *Mr. Castel* placarded on the curtain of the theatre an "*Agronomic Chart*," drawn up by a departmental professor in France; in explaining the construction and the details of this chart, Mr. Castel observed that, though he only exhibited it to show the values that is attached in the old countries to abundant supplies of appropriate manures, adding that he did not ask the Chicoutimi agricultural society to draw up such a chart for their county, still he was well aware that as soon as its need was felt, the men of intelligence and initiative who are as its head would not fail to have recourse to this means of assisting farmers to make the best of their land.

M. Chapais, who took the place of Mr. Montminy in the chair, expressed the satisfaction felt by the Dairymen's Association and its directors at this successful convention at Chicoutimi, and he thanked, in the name of the Association, the promoters and organisers of the convention for the zeal they had shown. (Applause.)

M. Wm. Tremblay, seconded by MM. Côté and Boivin, proposed a vote of thanks to the directors and lecturers of the Dairymen's Association, which was heartily responded to by the meeting, which then broke up.

REPORT "IN EXTENSO"

OF THE

FIFTEEN ANNUAL CONVENTION

OF THE

DAIRYMEN'S ASSOCIATION

OF THE PROVINCE OF QUEBEC

HELD AT JOLIETTE, THE 2ND AND 3RD OF DECEMBER, 1896.

SESSION OF WEDNESDAY MORNING, DECEMBER 2ND

The Hon. Sydney A. Fisher in the chair.

As the Rev. abbé Montminy, the president of the Association, was too ill to be present, it was proposed by Mr. J. D. Guay, of Chicoutimi, that the Hon. S. A. Fisher, Minister of Agriculture, a former vice-president of the association, should act as chairman, until the election of officers was held.—Carried unanimously.

NOMINATION OF THE COMMITTEES.

Proposed by Dr Couture, seconded by M. Wm. Tremblay, that MM. J. de L. Taché, Robert Ness and J. D. Guay be appointed as the committee of election : carried unanimously.

Were appointed as judges of the samples of butter before the association, MM. Vaillancourt, Chas. Préfontaine, Alex. Chicoine and J. de L. Taché.

MM. J. A. Plamondon, Wm. Parent and R. A. Lister were appointed judges of the samples of cheese.

MM. Drysdale and Wm. Tremblay were named judges of the silage-samples.

And MM. Alex. Chicoine, F. X. O. Trudel, and Chas. Préfontaine as judges of implements and machinery.

REPORT OF M. E. BOURBEAU

Inspector-General of the Syndicates.

To the Members of the Board of Directors
of the Dairymen's Association of the Province of Quebec.

GENTLEMEN,

I have the honour to submit to you my first report as Inspector-general of the creameries and cheeseries of the province of Quebec.

Before beginning my visits to the syndicates, I received instructions to make a tour through the province of Ontario, with my assistant, M. Plamondon. Our mission was to study specially the operations of the best cheeseries there, and to seek out the cause of their success in the establishment of and maintenance of good and extensive factories. I may tell you that my tour has been of great use to me, and that our treatment was all that we could desire on the part of all the men of business and of the makers, who gave us with the greatest readiness all the information we sought for.

As M. Plamondon and I are to send in a conjoint report of our tour, I will pass on to other matters.

Immediately after my return from Ontario, I began my visits of inspection through the syndicates.

This year, I visited 160 factories ; these I have classified as follows :

1st class	89
2nd "	50
3rd "	21

As to the care of these factories, cleanliness, etc., I mark them thus :

1st class	107
2nd "	35
3rd "	18

I examined, in these factories, 14,824 cheeses, which I classify thus :

1st quality	7518
2nd "	6696
3rd "	610

I visited fewer factories than last year ; for, having been ordered to look after the inspectors more particularly, I thought it would be better to make cheese and butter with them, than to make a greater number of visits to the factories.

I am glad to say that I found a sensible improvement over previous years, as

much in the care taken of the factories as in the quality of the cheese. Apart from the means our inspectors had taken to improve our products, there are two other causes that have greatly contributed to that improvement.

The first was a series of dairy-competitions, organised by the Department of Agriculture. These have already done much good, and will, in future, do still more. Only to cite one instance, among many, a maker obtained 98½ points ; he had lost one point because the box was not perfect ? When I visited his factory, he showed me the boxes he had been making, since he had learnt through the competition that butter boxes must be employed, and I can safely say that the boxes I saw at my visit were irreproachable. To show you how much I appreciate this, I must tell you that I am happy in sharing the opinion of Mr. G. Henry, secretary of these competitions, when he says : "There is no doubt at all about the importance and usefulness of these competitions. They excite strong emulation between the makers, each of whom being in a position to hope to gain a medal or a prize independently of the others, since the number of prizes is unlimited, and that, to win one, it is only necessary to get the requisite number of points. They point out clearly to each competitor the parts of his mode of making that need alteration. Lastly, there is a very great advantage in bringing more closely together the buyers (among those selected as judges) the producers, and those entrusted with the duty of instructing the makers and inspecting the factories ; from this results by degrees a more thorough comprehension concerning the proper qualification of the goods sent to market and their relative values ; the best makers are easily discovered, and it is to be hoped that hereafter bad goods will no longer have any chance to obtain on the markets as high a price as the best products ; and this will compel the makers to become acquainted with the best methods of making, and, moreover, when learnt, to follow them."

The other cause, that has helped the improvements, is that buyers have taken more pains than usual to pay for cheese in accordance with its quality. I hope this will increase, and will shortly become the general practice. And, since I am talking of the buyers, I will, Gentlemen, take upon myself to draw your attention to certain facts that may prove injurious to the improvement I have mentioned above : I am speaking of the local agents who are employed as cheese-buyers and who know nothing at all about the qualities of good cheese, or of its manufacture, on which subject, however, they presume to give advice. Were there many of such buyers, the fact would very much assist the cheese of this province in retaining the name of "Joseph" or "French" cheese.

I have no intention of guiding the commercial firms ; still, I must point out the fact, and call attention to this truth : it will be the producers who will be the losers, if they sell their goods to agents such as I have mentioned.

Though I stated just now that some progress had been made during the last year, it is no less true that a great deal more remains to be made, more especially in the installation of our factories and in the appearance of our cheese.

Want of means is the general cause of the former fault ; but what is the cause of the latter ? The reply is simple : negligence, and too often, sloth ; it is sad to say so, but it is only too true.

It strikes me that the farmers ought to see how injurious it must be to them to have their goods made up in unsuitably constructed factories, or by makers who keep nothing about the place tidy and in good order.

It is sufficient to think of the low price our dairy-goods are fetching to see that we are not the only ones on the market, and that, in the competition that is being carried on between the different nations to take possession of it, the victory will remain with those who make the best flavoured and the best looking goods.

DISCUSSION OF MR. E. BOURBEAU'S REPORT.

M. Chapais.—How do you distinguish between factories of the first, second, and third class ?

M. Bourbeau.—Strictly speaking, there are very few first class factories ; in a factory of the first class, the temperature ought to be under control, especially in the ripening room. Rather more than half the factories I have been through are first class.

M. Chapais.—In the factories you have entered as first class, is the temperature under control ?

M. Bourbeau.—Not generally.

M. Chapais.—Then you only call them first class because they are the best of the lot ?

M. Bourbeau.—True.

M. Brodeur.—That is just what the judges did in Montreal, in 1894.

M. Bourbeau.—The factories in which the temperature is always controlable are very scarce ; I hardly know any such.

M. Brodeur.—Would it not be better to admit at once that there are no first class factories ?

M. Bourbeau.—That might be more exact, but a little too severe.

M. Brodeur.—If there are no first class factories here, what is the good of saying that there are ?

M. Bourbeau.—I was following established precedents.

M. Brodeur.—I say that we have some first class factories.

M. Bourbeau.—There are some, but not many.

Mr. Barnard.—How would you regulate the temperature ? Have you any simple means of doing so to suggest to us ?

M. Bourbeau.—The general faults are the want of ventilation and the paucity of conveniencies in the buildings. In Ontario, the factories are well ventilated ; they have ice-houses for the summer and heating apparatus for winter.

Mr. Barnard.—Are such factories common in Ontario ?

M. Bourbeau.—There are some.

M. Wm. Tremblay, Chicoutimi.— According to you, there should be ice-houses in our cheeseries.

M. Bourbeau.—Decidedly ; in some places ice-houses are positively necessary.

A Delegate.—On what do you found your statement that we have no first class factories ?

M. Bourbeau.—In this province, there are very few factories in which the summer temperature does not rise to 80° and even 85°. It ought never to exceed 70° in a factory. The best built of our factories cannot control the temperature, but in Ontario it is done, and it is necessary that it be done.

M. Wm. Tremblay.—Ought not the factory walls to be thicker.

M. Bourbeau.—Yes, generally.

M. Chapais.—What do you understand by a second class factory ?

M. Bourbeau.—I will speak of those factories that are really second class later ; as for those of the third class, they ought not to exist any longer. There are several things characteristic of factories of the second class; in some places, I found factories that had no ceiling ; in others, the cheese was stored under the roof, where it could follow the outside temperature of 80°, 90°, and sometimes of 95°.

M. Wm. Tremblay would like to know the proper way to build a first class factory.

M. Bourbeau said that would depend upon the quantity of milk there would be to work up.

M. Castel wished to know how many pounds of milk should be assured, before one could feel safe in starting a cheesery.

M. Bourbeau thought at least eight to ten thousand pounds ; otherwise no great profit was likely to be made.

This is how a thoroughly first class factory should be built : 24 by 48 feet ; 24 feet would do for the making part of the factory ; and the other 24 feet for the ripening room. There should be 11 feet from floor to ceiling, be built on a stone foundation (*solage*), and made of 3 inch boards with a lining of paper. The general defects in factories are want of space from floor to ceiling, want of ventilation, and leaky walls. In my opinion, there should always be a double lining of paper between the double boards of the floor. It is not rare to find factories in which the cheese moulds ; this is due to the damp that passes too freely through floors that are not paper-lined.

M. Wm. Tremblay.—Then, to have a sound floor, there must be two layers of boards with paper between them ?

M. Bourbeau.—Certainly.

M. Wm. Tremblay.—Do you think that to put the ripening room above the making part of the factory would be wise ?

M. Bourbeau.—It cannot be done.

Mr. Barnard.—But in a regular second storey ?

M. Bourbeau.—I have never seen a proper one in that style. It is always too hot there.

Mr. Barnard.—Would it not do to build a good factory without having a certainty of 10,000 lbs. of milk at starting, if there was a good prospect of more in future ?

M. Bourbeau.—Farmers do not always answer the expectations of the maker, and they often leave a good factory and take their milk to a second rate one.

Mr. Barnard.—Is not that due to the fact that every one is compelled to cart, each, his own milk to the factory ?

M. Bourbeau.—Yes, this is one of the causes of there being so many small factories. Another, is the bad roads

M. Castel.—Are you not about to make a most interesting improvement in the roads ?

M. Bourbeau.—Yes. we intend to improve the roads in some parts of our parish : government supplies a stone-crusher and a foreman, and the farmers have only to cart and spread the stones. I have offered to give the parish wood for fuel ; this will cost me about fifty dollars ; but I shall get it all back again in less than two years. Good roads will make the traffic easier, and I reckon upon more milk delivered at my factory.

Mr. Barnard.—Do you not think that one means of preventing undue competition would be to have the milk carted by the factory, it having the right to make a slight charge for the work ?

M. Bourbeau.—I agree with you, but the roads must be better than those we have now. In my district I could not possibly undertake the cartage.

Mr. Barnard.—I remember the opposition made to the starting of a creamery, below Quebec, in 1881. People said then : it is impossible ; you will fail ; you will do more harm than good, etc. The roads were dreadful, the parish poor, and in spring the cows had to be lifted on to their legs by means of their tails. Two years later, there were 2,300 lbs. of milk delivered daily. A few years afterward, from 15,000 to 16,000 pounds of milk were received there daily, and such are the results obtained, that the farmers have paid off their mortgages and are now prospering. Formerly, they could not stay on their farms ; now, the factory pays dividends of from 75 °/o to 80 °/o, and is equal to the best in Ontario.

A Delegate.—What is the best way to engage a good maker ?

M. Bourbeau.—A difficult thing to do.

The Delegate.—Suppose one was to insist upon a diploma of capacity from the makers ?

M. Bourbeau.—A very good plan ; but if it was followed out, a good many makers would have to retire. I met a maker in the Three-Rivers district who was working for ten dollars a month ! I refused the inspector, who asked me to see him, considering that nothing was to be learnt from a man who would work for such wages. Many of our makers ought never to be at the head of any factory. Those

small factories, who cannot afford to pay good wages for a good maker, are obliged to employ such people ; and such factories have no business to exist.

M. Chapais.—Do you think it the duty of a maker, who agrees to carry on a first class factory, to clean out the whey-vat ?

M. Bourbeau.—Yes, twice a week at least.

M. Chapais.—Have you ever met any who did not think it was their duty ?

M. Bourbeau.—Yes.

M. F. X. O. Trudel.—Can the giving of the whey to cows affect injuriously the flavour of the cheese ?

M. Bourbeau.—Decidedly.

M. F. X. O. Trudel.—I propose that the association pass a resolution condemning the giving of whey to the cows.

Mr. Barnard.—It is said, in our parts, that no bad flavour is imparted to the cheese by the practice, provided the whey-vat is kept clean. Have you ever tried boiling the whey ?

M. F. X. O. Trudel.—No.

Mr. Barnard.—Whey, boiled as soon as it leaves the vat (in which the milk is renneted), will remain entirely unchanged for 30 hours. And if it is pasteurised, at 160°, it will even do for the calves.

M. Plamondon.—It would be better to warm the milk (whey ?) to 180°, than only to scald it. When people come to fetch away the whey treated thus, next day it is found to be as hot as when it left the vat.

M. Castel.—Can whey, in such a state, be given to the cows with impunity ?

M. Bourbeau.—Yes.

Mr. Barnard.—What would be the best way to prevent the whey from souring in the vat ?

M. Bourbeau.—To gather it, after being sterilised, into a tin vat, that is washed out daily. I recommend every one who is about to renew his vat, to make it of tin ; thus made, they will be forced to wash it out daily to avoid rust.

M. W. Parent.—I think all the vats should be of tin ; if the milk (whey ?) turns sour in them, the tin will wear off ; so, the maker has to keep them clean. The unsound flavour of the cheese often proceeds from the whey, which remains for the greater part of the day in the cans, that are then carelessly washed. The best way of curing bad odours in cheese, is to have good, clean cans for the whey. If a bad aroma is found, in the competition, in our cheese, the reason for it is that the milk is kept in filthy cans.

M. Bourbeau.—Bad water is another cause of bad aroma in our cheese. Many factories have nothing but a well, and that too near the factory. I have even seen a well underneath the factory itself, and the water therefrom was very bad. The maker, however, used it, and made, of course, inferior cheese. I told both the maker and proprietor that this water ought not to be used, and it was altered ; and,

this year, they made four consecutive sales, at no one of which was any "cut" made ; a thing that, previously rarely occurred.

Mr. Barnard.—I think, indeed, that the great number of fevers that happen in this province are due to the impurity of the water-supply ; too many of the wells are too near the houses I should like to call the attention of the Chairman to this point, when M. Bourbeau has finished.

M. Castel.—Do you hold that the maker should be responsible for the damage done to the cheese on the road from the factory to Montreal, or for that due to the employment of bad water ?

M. Bourbeau.—No ; it is wrong to lay all the blame on the maker ; makers are often very unfairly treated in Quebec. Again, this fall, a maker lost 1¼ cent a pound, for which he ought not to have been held responsible, as the bad flavour complained of was caused by the water he was obliged to use. The cheese was well made ; it was the fault of the water entirely. I do not think it was fair to make the man lose this money.

M. Castel.—As to the question of water, last year, at Waterloo, professor Shutt, the chemist at the experiment-farm at Ottawa, gave us to understand that he would always be happy to receive, for analysis, water sent from creameries and cheeseries. The Creameries Association of Ontario has agreed with him to analyse such waters, and I think we ought to do so, too. You need only send him samples of doubtful waters, and he will made a report on the cause of the bad qualities of them.

Mr. Barnard.—It often happens that the maker is unfairly treated by the patrons ; he is blamed for everything. I think it would be well to have in the association a board of competent men to decide all disputes between makers and patrons. I do not bring forward this proposition as a substantive motion, but as a project for study.

A Delegate.—Could not the inspector study that question as he is going through the factories ?

M. Bourbeau.—I have already made a remark to that effect.

Mr. Barnard.—Our inspectors are already overburdened ; they cannot undertake specific cases that may involve two or three days devoted to investigations. I think we could find in the association men competent to prevent a crowd of suits and acts of unfairness.

M. Brodeur.—Do you not think that this measure should be calculated rather to protect the ignorant ? A first class maker would always be able to see if defective cheese depended upon his work or upon the bad water he had to use ; and if the fault lies with the proprietor, the maker would refuse to work under such conditions.

Mr. Barnard.—We do not understand each other ; troubles may well arise, even in the case of a good maker, and it is for the purpose of settling those troubles that we make the proposal.

M. Vaillancourt.—As to this question of water, I think there is a great deal

more bad milk than bad water. There are many makers who agree to be responsible for the proper making of their cheese, and who yet find themselves forced to accept bad milk, on account of the competition that exists and of the great number of small factories. At many farm-houses, cleanly habits are not the rule; very frequently the whey that has been brought home from the factory in the morning (and in what a state !), is still in the milk-cans at 4 p m.

Now, M. Bourbeau said that buyers do not make enough distinction between good and bad cheese ; I think that if he came to Montreal some Monday morning to sell his cheese on the wharf, he would soon see the difference. There are sellers who say they are " cut " ; some even who say they are cut with a razor ; it is not the latter who go about saying that the buyers make no difference between good cheese and bad !

M. Bourbeau.—If I said it, it was because I was sure of it. I have witnessed it more than once. I have seen very inferior cheese bought at the same price as good cheese, especially by country buyers. I could give you names : appoint a jury of honour, and I will lay before it ten or more names.

M. Vaillancourt.—There may be exceptional cases, but we are not here to discuss such exceptions.

M. Bourbeau.—I have seen those faults, and I quote them in a general way ; those who think they are aimed at by my words can explain themselves.

I examined a bad cheese at M. Vaillancourt's place, and asked whence it came ; I received no reply.

M. Vaillancourt.—I do not think I was impolite in refusing to tell M. Bourbeau whence the cheese in question came, since he was not present as an official. The cheese had been made with bad rennet ; this rennet is no longer a danger, as it is all at the bottom of the St. Lawrence.

Mr. Macdonald, M. P. P.—M. Bourbeau's remarks about dealers who pay as much for bad as for good cheese is perfectly correct ; it happens so in our district. Half of our makers are properly qualified; one-fourth are very ordinary makers and the rest are very bad ; and yet we observe that the Montreal buyers pay no more for superior cheese than for common. The owners of good factories do not get $\frac{1}{8}$ of a cent more than common makers get. M. Bourbeau was right in saying that sufficient attention is not paid to the quality of cheese. We have done our best to get established a difference of price between good and inferior cheese, but we failed on account of the opposition of the buyers.

M. l'abbé Côté.—Lately, at St. Hyacinthe, a buyer came who would not have any " fodder-cheese " (*fromage d'étable*) ; now, we had been obliged to make some for a fortnight ; this cheese was sent to Montreal, where it fetched $9\frac{1}{2}$ cts, the same price as was agreed upon for October cheese, while November cheese, kept in good order for twelve days, was only paid for at the rate of $8\frac{3}{8}$ cts. a pound.

An unknown Delegate.—I think cheese ought not to be sent off unless it has been sold before leaving the factory. If it is the buyer who is to arrange the difference in

the quality of the cheese when he gets possession of it, nothing is easier for him than to classify superior cheese as " second quality ". All this irregularity of classification may be got rid of by selling cheese " delivered at the factory." I had a creamery for some years, and always sold my butter at the factory.

M. Castel.—In reply to this remark, I beg to say that Syndicate No. 2 of the county of Shefford passed a resolution, three years ago, by which all its members are bound to sell their cheese at the factory. Both weight and price are settled there. Here is the third report of the inspector stating that this arrangement is giving perfect satisfaction to both patrons and buyers.

The Hon. S. A. Fisher.—On the local market, I think the buyers do not make any difference between the prices of good and middling cheese ; and this is why those who sell on the local market are " cut " in Montreal. It is thus that, owing to the faults of bad makers, the good ones are not encouraged.

I will also mention what the Shefford Syndicate has done with reference to bad milk taken to the factories. Every member of the syndicate has agreed to enter into a bond not to accept any milk that has been refused at any other factory in the syndicate. (Applause.)

M. Bourbeau touched upon another question, the improvement of factories. It is impossible for us to have factories in the first class, so long as we continue our system of competition and small factories, with their 3 or 5 cheeses a day. In such factories as these, it is impossible to make good or uniform cheese. A factory, to be advantageously worked, must make ten or twelve cheeses a day. It is such as these that have established the credit of Ontario and Prince Edward's Island on the English market.

The best example of an improved factory is to seen in Prince Edward Island, the cheese from which was sold this year as high as Ontario cheese. This result was arrived at by following the methods and rules of Ontario, and the trade has succeeded, in three years, in winning a reputation on the English market. In a little trip I made there lately, I visited a factory that I found to be superior to any one I ever saw in Ontario or Quebec.

If we mean to succeed, then, we must have extensive, well fitted up factories, and not those small one that are the ruin of our trade. (Applause).

REPORT OF M. PLAMONDON, ASSISTANT-INSPECTOR-GENERAL.

To the President and Directors of the Dairymen's Association
of the Province of Quebec.

GENTLEMEN,

I have the honour to submit to you my first report as Asst.-Inspector-General of the Dairymen's Association. My engagement dates from May 1st, 1896, and

expires May 1st, 1897. I began my work last season by taking a tour through Ontario, in company with M. Bourbeau, the Inspector-General. In that province, we visited some of the best and largest factories to be found in the Dominion. As a complete report of this tour will be sent in to you, I will not detain you any longer on this point. On our return from Ontario, I at once begun my tour of inspection through the different syndicates of this province, and kept on in the same way up to the end of October. I am, at present, busy making cheese at the St. Hyacinthe Dairy-School.

During the season, I visited 28 syndicates, 24 of them once, and 4 of them twice ; in all, I saw 291 cheeseries and 25 creameries ; I tested 15,813 cheeses ; the whole I classify thus :

	Totals.	1st	2nd	3rd
Factory and outhouses, drainage	291	158	107	26
Materials and utensils	291	233	54	4
General state of the factory	291	170	106	15
Method of making	291	163	110	18
Cheese	15813	6218	8537	1058

The cheese I classify as first-class was really of the best quality, and *in every respect equal to the "Finest" of Ontario*, or to the best cheese I have ever seen.

The number of the cheeses in the second class may seem rather great, but I must observe that at least $\frac{2}{3}$ of them were by no means bad ; true, they were hardly fit to be just in the first class, on account of some defects ; some, as regards texture ; others, deficient in appearance ; others, again, from this or that fault, so that, not being in every respect of the very finest quality, I had to put them in the second class.

Those in the 3rd class were really bad in quality, and it would have been better *for all parties* had they never been made.

At the beginning of the season I found many cheeses pasty, soft, and sour, and this because the makers had been advised to make soft cheese. Unfortunately, in factories where the cheese was already soft enough, the makers went too far. Consequently, some experienced men, really skilful in their work, were completely lost, and it took them the best part of the season to find their way back again. It was no use our telling them to make firmer cheese ; they had been told that the market wanted soft cheese, and soft cheese they would make at any price. In general, the men are but too well inclined to make this sort of cheese ; it takes less milk, gives a better yield, and allows of the day's work being finished earlier and with much less labour.

I also found a good deal of cheese that had a bad aroma, on account of the

want of knowledge, or the want of care, in the preservation of the milk on the part of the patrons. Milk is too often taken to the factory in very bad order. The maker, *having only a small factory*, or suffering, as is so often the case under *improper competition*, is compelled to accept the milk; as usual, he does not know how to treat it, so as to get rid of the bad smell, and thence arises *a bad aroma* in the cheese. It is, of course, utterly impossible for bad milk to be converted into good cheese.

A very bad practice consists in carrying the whey home in the milk-cans, and leaving it in them till they are wanted for the next milking; when they are rinsed out in a hurry, and the new milk, quite warm, is poured into them. Not infrequently, too, the cans are left close to the pig-yard (1), the plat-form being placed there for the sake of convenience.

In Ontario, we met with no cheese having *a bad aroma*; but there they never dream of taking home the whey in the milk-cans.

In many places, especially on the North bank of the St. Lawrence, between Montreal and Quebec, grass was very scarce this season, and the cattle were, in consequence, obliged to devour all sorts of weeds, leaves, etc, and this tended to vitiate the aroma of milk, butter, and cheese.

And so, too, in some parts, water was very scarce and bad, at the factories as well as at the cattle's drinking places. I saw in some places wells lined with wood; when these planks, through age, become rotten, a very bad taste of old wood is communicated to the water, rendering it unfit for every kind of use.

Rennet, too, has been, this season, a great source of annoyance and damage. I was shown two or three samples of it; its smell was indescribably horrid; the makers, naturally, would no longer use it, but threw it away as soon as they could get other kinds. They showed it to me, asking if they would not be justified in sending it back to the seller, which I advised them to do. This is a very great danger, and one that must be guarded against most strenuously. Unfortunately, the effect of bad rennet in cheese cannot be so soon detected as the bad odours in milk, as it only becomes perceptible in proportion to the degree of ripening of the cheese.

But it is not always that the patrons, the milk, or the rennet are in fault. Too often, the maker himself is the one responsible for the difficulties that occur. At Arthabaska, I was told of a maker, who advised the patron to leave the milk alone, and not to bother themselves about cooling or aerating it. He had always done his day's work by 2 p.m., they said, and they asserted that he was making good cheese. I asked if they had tried it; of course, they had not; so, the next day, we went to the factory at about 2 p.m.; the maker had left, the work was finished, but the place was filthy, and I never tried cheese that had a worse smell. How could it be otherwise?

(1) *Souille* means, properly, "a wallowing place."—A. R. J. F.

At Rimouski, I passed a day at a factory that was very foul. While there, I had occasion to saw off the feet of one of the vats. A month later, the inspector visited that factory ; would you believe it ? the saw dust was just in the same place ; and, yet, the same maker never ceased to complain that the patrons took no care of their milk ; he had even requested the curé to speak about it from the pulpit. The curé came to see me, during my stay, and advised me privately to scold (*tancer*) the maker well about the filthiness of the factory : he knew very well where the cause of damage lay !

I even, once, visited a factory in which the air was so full of bad smells that I could not stay in it

Still, thank goodness, it is not so everywhere, and I am happy to say that I have visited in this province factories that are really and indeed well built and cared for with the greatest care and attention to cleanliness. I note with pleasure, as true models, the factories of M. Chas. Martel, Baie St. Paul, Mr. Seth Carr, Richmond, and Mr. Thos. Delaney, Yamaska. There are, doubtless, others, but I have neither time nor space to mention them.

Before closing, I must not forget to speak of the excellent cheese I saw at the Waterloo Exhibition. It was by far the best of all I saw this year at the fairs. At Chicoutimi, too, there were evidences of great improvement. At my last visit, in August, I had proof enough that the local inspector had not been asleep, and that the makers were following out his instructions.

You will permit me, before concluding this report, to relate the remarks made, in March last, at a convention held at Guelph, Ont., by Mr. Bell, of Tavistock, and Mr. Beam, of Black-Creek, on the importance of a better understanding between patrons and makers : "Makers and patrons, up to the present time, have always kept themselves too much apart, as if they had been engaged in a contest with one another in their respective departments. A minute's reflection, without prejudice, cannot fail to show that the success of the one is necessary to the success of the other ; for the maker cannot turn out good cheese unless he is supplied with good, well flavoured milk ; and, if the cheese is not of the best quality, the price obtained for it will not be the top of the market. What we need then is more confidence, on the part of the patrons, in the maker, who, if he understands his business, must be in the best possible position to instruct the patrons how to take care of their milk. Mr. Bell, too, made it clear that, in the great majority of cases, *milk in bad condition is the result* of a want of the knowledge of how to keep it properly. So that it is wise on the part of the maker to cultivate friendly relations with the patrons, not only by giving them practical advice, but by urging them, by means of frequent hints, to attend to those duties regarding the care of their milk, that, otherwise, might be neglected through want of thought. Makers should not forget that patrons read and think, and that it is useless, for either maker or proprietor to ask for milk of the best quality, if the factory and its surroundings

wear a filthy and disgusting appearance, instead of presenting, as they should do, a brilliant model of cleanliness to the entire neighbourhood."

The whole respectfully submitted.

DISCUSSION.

A Delegate.—What is the best means of preventing the sale of bad rennet ?

M. Plamondon —I think the best way is to do as we did : throw it away.

A Delegate.—Yes, but if more of the same sort is for sale ?

M. Plamondon:—In this case, I think it should be sent to a chemist for analysis. I tried the rennet in question at St Hyacinthe, at the rate of 1½ ounce to 1,000 lbs. of milk, and the milk curdled in 40 minutes. At that moment, the rennet was all right, but later, when the hot weather arrived, it did not keep ; there was doubtless something wanting in it.

The best way to have good rennet, is to buy only a sort that bears a well known trade-mark.

M. Vaillancourt.—I must observe that it is 20 years since such a thing has happened, and I hope it will be 20 years more before such a thing recurs.

M. Plamondon.—The cheese made with that rennet took on a bad smell when it had been made some time, but at the time when it was fresh, no one could find fault with it, we often find rennet too weak in its action, but it never gives a bad smell to the cheese.

M. Tellier, M. P. P.—I was told that the bad rennet, that was used this year, and which imparted so coarse a smell to the cheese, had been submitted to inspection and found to be good : I saw this affirmed in several papers.

M. Plamondon.—I know nothing about that ; I tried it myself ; then, it was all right, but it seems to have turned as soon as the hot weather began. No doubt, there was something wrong with it, but what that something was I could not find out. It ought to have been analysed by a chemist.

Mr. Barnard.—The Association has certainly never authorised any one to analyse it and give a certificate of its goodness. In future, no one should ever give his signature of approval to any rennet before having taken all necessary precautions. I do not blame any one : it is a misfortune. Our officers acted for the best in this case, and in future the inspectors will not sign anything.

M. Castel.—I have been informed that the certificate in question was given in 1895 and not in 1896, that is, 14 or 15 months before any complaints were made about this rennet, and by to-morrow, I shall have the affirmation, in writing of the officers who gave the certificate.

An abbé.—Was the rennet ever submitted to the official chemist ?

M. Plamondon.—No.

M. Vaillancourt.—It was analysed by a Parisian chemist.

A Delegate.—Was this rennet tried this year ?

M. Castel.—I do not think any certificate was given this year as to the quality of the rennet.

M. Vaillancourt.—M. Plamondon tried it this summer and found it all right. The certificate had the effect of increasing the sales.

M. Barnard.—I think we shall best settle the matter by saying that, in future, our officers shall be instructed to give no personal diploma, until we shall have received the requisite information from Ottawa. (Applause.)

A Delegate.—What precautionary measures do you recommend to be taken to ensure the goodness of the rennet used in the factories ?

Mr. Barnard.—M. Plamondon answered this question just now : a good trade-mark. It is far better to pay a good price for good rennet, that a low price for bad.

Mr. J.-L. Allard.—How can we prevent cheese from cracking in the Autumn ?

Mr. Plamondon.—Depends either upon the method of making, or upon the building, or the ripening room. Sometimes the drying room is too warm, or, again, some cheeses are too near the stove, and another lot too far off. Again the method of making may be the cause ; for instance, if too dry a cheese is made. Once more, if the moulds are not kept clean, quantity of a certain acid is formed which cracks the cheese. Lastly, if the cheese is pressed too fast or too slowly ; if too slowly, the whey expressed adher to the sides and cracks the cheese.

Mr. Castel then read a circular about the " Trade-mark of dairy-goods, and the registration of factories," and concerning a bill entitled : " Act modifying the Act concerning Dairy-goods, 1896."

(*Circular.*)

DOMINION OF CANADA.

DEPARTMENT OF AGRICULTURE,

AGRICULTURAL AND DAIRY COMMISSIONER'S BRANCH.

Ottawa, 26th, October 1896.

I am directed by the Minister of Agriculture to state than an Act to amend *The Dairy products Act*, 1893, was introduced by him into the House of Commons during the late session. It deals with the branding of marking of cheese and butter and the registration of cheese factories and creameries. It was prepared in the form of an Act in order to give those who are directly interested in the matters with which it deals an opportunity to discuss it before the next session of Parliament.

The agitation for the branding of the date of manufacture on cheese began in Great Britain in the autumn and winter of 1894-95. Circulars were addressed "To the producers of Canadian cheese" from the Home and Foreign Produce Exchange, Ltd, London, England, and from some other Exchanges in Great Britain. These

circulars stated that "there has been considerable dissatisfaction among the cheese "distributors on this side of the Atlantic, as to the course of the business during "the last two or three years, especially as to buyers who in many cases alleged that "they did not receive the special month's make they had contracted for, which "called for frequent arbitration during the season just closed.

"The result has been to injure the good reputation of the Canadian product, "and to destroy that confidence in dealing which is so essential between seller and "buyer.

"As the result of a conference representing a great majority of the trade in "Great Britain, suggestions have been made to your Government as to the desir-"ability of an Act making it compulsory to brand the date at the time of manu-"facture upon each cheese. It is fully believed that such protection will be a "decided advantage to the factorymen and to the distributors throughout the "United Kingdom, as it will at once restore confidence on this side, and effectually "prevent any speculative or unscrupulous shipper covering his transactions by "substituting one month's make for another. It is earnestly hoped that the "factorymen throughout the Dominion will at once commence dating their cheese, "especially as the desire is pretty general among the importers to favour those "factories adopting this system."

The above quotation is from the circular sent out from Great Britain; and the agitation was made stronger by indefinite rumours and reports in the newspapers, hinting that misrepresentation of the dates of manufacture of Canadian cheese was practised extensively.

I am of opinion that the charges that the make of one month had been sold as, shipped for, or substituted for the make of another month were almost wholly without foundation. It has been our practice, and should be our continued policy and practice as Canadian dairymen, to retain the confidence of the merchants and consumers who buy our cheese and butter by fair and straightforward dealing.

Although a special law dealing with the branding of cheese may seem to some of those who are engaged in the trade to be unnecessary, it is highly important that the request of the merchants in Great Britain, who import and handle our dairy products, should be complied with, if not in any degree against the interests of the producers of cheese and butter in Canada.

On the 25th of March, 1896, circulars were sent to about 2,000 representative dairymen, principally presidents, secretaries and salesmen of cheese factories and creameries.

In reply to the question, "Are you in favour of a law making it compulsory to brand the date of manufacture on cheese?," 544 replies said "Yes"; 63 replies said "No".

I enclose a copy of the Act introduced by Hon. Mr. Fisher, upon which it is desired to have an expression of opinion from you.

Section 4, subsections 1 and 2 are the same as they are in *The Dairy Products Act* of 1893.

Subsection 3 prohibits misrepresentation of dates with intent to defraud.

Subsection 4 and 5 provide for the issuing of a registered number for every cheese factory and creamery, in order that the products of each factory may be traced back to the factory where they were manufactured, and that each factory may thus gain whatever advantage may be in the reputation won by the quality and appearance of the goods made at it and bearing its own registered number.

In cases where one owner has several factories, they may be registered under the name of the "combination," with the name of the combination, and a different number for each factory, as "Allangrove, No 1," "Allangrove No 2."

In cases of some factories where a few culls or inferior cheese may be made during the year, they may be branded "Seconds," in addition to the registration number only, more valuable.

Subsection 6 does not require the day of the month to be branded on the box or package which contains the cheese; it requires the name of the month only, as it might not be practicable in cases of broken boxes and in boxing the cheese, to determine the exact date of the month on which any particular cheese was made.

In case the Act becomes law it is proposed that one brand shall be supplied for each factory, when the certificate of registration is issued, at not more than the cost price of the brand.

The brand may be of the following form :

Please answer the questions on the enclosed sheet, and return it in the envelope also enclosed, at your early convenience.

JAS. W. ROBERTSON,

Agricultural and Dairy Commissioner.

BILL.

An Act to amend the Dairy Products Act, 1893.

HER Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows :—

1. This Act may be cited as *The Dairy Products Amendment Act*, 1896.

2. This Act shall come into force on the first day of January, 1897.

3. Section four of *The Dairy Products Act*, 1893, is hereby repealed, and the following substituted therefore :—

" **4.** No person shall apply any brand, stamp or mark of the word 'Canadian' 'Canadien,' or 'Canada,' as a descriptive term, mark or brand, upon any cheese or butter, or upon any box or package which contains cheese or butter, unless such cheese or butter has been made in Canada.

" 2. No person shall knowingly sell, or offer, expose, or have in his possession for sale, any cheese or butter upon which, or upon any box or package containing which, the word 'Canadian,' 'Canadien,' or 'Canada,' is applied as a descriptive term, mark or brand, unless such cheese or butter has been made in Canada.

" 3. No person shall knowingly sell, or offer, expose, or have in his possession for sale, any cheese or butter upon which, or upon any box or package containing which, is printed, stamped, or marked any month other than the month in which such cheese or butter was made ; and no person shall, knowingly and with intent to misrepresent or defraud, sell, or offer, expose, or have in his possession for sale, any cheese or butter represented in any manner as having been made in any month other than the one in which it was actually made.

" 4. The owner of every cheese factory or creamery where the making of cheese or butter is carried on, shall send by registered letter to the Department of Agriculture at Ottawa, particulars for the registration of such cheese factory or creamery, as set forth in schedule A to this Act.

" 5. The agricultural and dairy commissioner, or such other officer of the Department of Agriculture as is designated hy the Governor in Council, shall forthwith send by registered letter to the owner of such cheese factory or creamery, a certificate of registration, showing the registration number alloted to such cheese factory or creamery.

" 6. No factory salesman or other person shall knowingly sell, or offer, expose, or have in his possession for sale, any cheese or butter which is made in any factory or creamery in Canada—in the case of cheese, unless the word 'Canadian,' 'Canadien,' or 'Canada,' and the registration number of the factory in which it was made, are printed, stamped, or marked in a legible and indelible manner in figures and letters not less than three-eighths of an inch high and one-quarter of an inch wide,

upon the cheese itself before it leaves the factory where it was made, and unless the word 'Canadian,' 'Canadien,' or 'Canada' and the registration number of the factory in which it was made, are printed, stamped, or marked in a legible and indelible manner in figures and letters not less than three-eighths of an inch high and one-quarter of an inch wide upon the box or package which contains such cheese ; and in the case of butter. unless the word 'Canadian,' 'Canadien,' or 'Canada.' and the registration number of the creamery in which it was made, are printed, stamped or marked in a legible and indelible manner in figures and letters not less than three-eighths of an inch high and one-quarter of an inch wide upon the box or package which contains such butter.

"7. No person, with intent to misrepresent or to defraud, shall remove or in any way efface, obliterate or alter, the word 'Canadian,' 'Canadien' or 'Canada, or the date, or the figure or figures of the registration number on such cheese, or on any box or package which contains such cheese or butter.

"8. Any dairymen's association or any dairymen's board of trade, or any syndicate of cheese factories or creameries, may apply to the Department of Agriculture for the registration of a trade mark for use on cheese or butter, or on packages containing cheese or butter ; and for the purposes of this subsection the expression 'syndicate means a number, being not less than fifteen, of cheese factories and creameries, which are united in an organization for the purpose of using the services of a dairy instructor and inspector.

"9. When a certificate of the ragistration of a trade mark has been issued, no person shall apply such trade mark upon any cheese or butter, except in compliance with the regulations made in connection therewith, and after being duly authorized to use and apply it.

"(*a.*) A certified copy of the regulations made by the dairymen's association or the dairymen's board of trade, or the syndicate of cheese factories or creameries in connection with the use of the trade mark, must be sent to the Department of Agriculture with the application for the registration of the trade mark.

"10. Every person who, by himself, or by any other person to his knowledge, violates any of the provisions of this section, shall, for each offence, upon conviction thereof before any justice or justices of the peace, be liable to a fine not exceeding twenty dollars, and not less than five dollars, for every cheese or box or package of butter which is sold, or offered, exposed, or had in his possession for sale, contrary to the provisions of this section, together with the costs of prosecution ; and, in default of payment of such fine and costs, shall be liable to imprisonment, with or without hard labour, for a term not exceeding three months unless such fine and the costs of enforcing it are sooner paid."

4. The said Act is hereby further amended by adding the following schedules thereto :—

"SCHEDULE A.

" Particulars for the registration of cheese factories and creameries :

1. Name of cheese factory or creamery.....
2. Where situated—

(*a.*) Province.....
(*b.*) County.....
(*c.*) Township or parish.....
(*d.*) Post office.....
(*e.*) Telegraph or telephone office.....
(*f.*) Railway station or shipping port.....

3. Name of owner.....
Post office address.....

If a co-operative dairy association or joint stock company :

Name of secretary.....
Post office address .....

4. Registered brand or trade mark, if any.....
5. Registered number alloted.....

The above is certified correct.

.....Owner.
.....P. O. address.
.....Secretary.
.....P. O. address.

Witness.....
.....P. O. address.

Witness.....
.....P. O. address."

"SCHEDULE B.

" Particulars for registration of a trade mark for butter and cheese :—

1. The name of the dairymen's association, the dairymen's board of trade, or the syndicate, on whose behalf application is made, is.....

2. The association, or board, or syndicate was organized.....18.....

3. The cheese factories or creameries which are included are situated in the county or counties of.....in the province of.....

4. The name of the person appointed as secretary of the said board or syndicate is.....of the.....of... .....
in the county of.....and province of.....
His post office address is.....

5. The trade mark for which a certificate of registration is applied for is.....
.....

6. A true copy of the regulations made by the association or board or syndicate, in connection with the use of the said trade mark, certified to by the president and secretary of the said association or board or syndicate, is attached hereto.

Signed..... ....
.....President.

Signed.....
.....Secretary."

Please answer the Questions and return this Sheet at your earliest convenience to

THE AGRICULTURAL AND DAIRY COMMISSIONER, OTTAWA, ONT.

Subsection 4: 1° Are you in favour of the registration of cheese factories and creameries?

Subsection 6 : 2° Are you in favour of the brand "Canadian" on cheese?..... ..... 3° Are you in favour of branding the date of manufacture on cheese?..... ..... 4° Are you in favour of branding the date of manufacture on butter?..... .....

Please answer these questions by a simple "yes" or "no"; and if you desire to offer any opinions on, or amendments to the Act, please state underneath the name of the subsection of the Bill to which they are intended to apply.

REMARKS :.....

Name. .....

Address.....

Are you the patron of a cheese or butter factory? .....
Are you the owner of a cheese or butter factory?.....
Are you the salesman of a cheese or butter factory?.....
Are you secretary or president of a cheese or butter factory?.....
Do you represent any Association or Company connected with dairying?.....
If so, please state the name of the Company or Association.....
And the capacity in which you represent it.....

AFTERNOON SESSION OF DECEMBER 2ND, 1896.

The Hon. S. A. Fisher.—Minister of Agriculture, took the chair, and invited those present to give their opinions on the subject of trade-mark.

Mr. R'Haven.—At the Waterloo meeting, last year, M. Taché mentioned an opinion of prof. Robertson ; this is what he said :

" England buys, from any one who sends to her, at the lowest possible price, the best good she wants. There is in this connection a peculiarity that I had better

mention : the English have a great regard for trade-marks, on all that concerns the eatables they buy and consume. The English buyer will not buy indifferently a good article of food from two different countries at the same price, unless at least this product bears and equally respectable trade-mark." (See 14th report of the Dairymen's Association, p. 214).

And his last opinion (Ibid. p. 29).

" I should like to say a few words on branding cheese. The question was discussed at length, and with considerable animation at Ottawa, during the last session of parliament. A bill was brought in, in virtue of which the name of the month in which the cheese was made had to be branded on the cheese. I am not in favour of that measure, because it is not a good thing to do a good thing at an inopportune time. Last March and April, a few buyers and I, who were watching the market, felt certain that the prices of the coming summer would be very low. If the bill had been carried, making the branding of cheese obligatory, and the prices had fallen as they have done, people would have said : " See what the legislature has done ; it has lowered the price of cheese." That is the reason that, in my report to the Minister of Agriculture, I ended thus : " I am not in favor of the marking of the date of the making of the cheese this year, it may do harm ; it ought to be postponed for a year."

Here, now, is the opinion of " La Presse ", for March 20th, 1896.

" As to cheese, the inspection being easy might suffice, seeing that the brand of the month of manufacture would be likely to encourage the prejudices of English buyers against cheese made in certain months of the year, and to hinder our cheese from being sold on its merits. It often happens, indeed, that cheese made in one part of August is equal, if not superior, in quality to that made in September, the month of all others noted for good makes. In this case, August cheese would not sell at its real value, and September make would fetch a price greater than its real worth."

Still, these sales being made by letter, or even by cablegram, and the month of the make being one of the elements of the price, no fault can be found if, as it is now proposed in the Commons, a mark of the month of manufacture on the cheese is required. It is not, in every case, the factory-men who oppose this, for they sell by sample, or after the inspection of each separate cheese. Those most opposed to this branding would decidedly be the exporters.

A Delegate.—Would the cheese alone be marked or would there be a brand on the box ?

Mr. Fisher.—Both cheese and box would be stamped.

A Delegate.—And butter as well ?

Mr. Fisher.—The tub, in that case, would be stamped.

A Delegate.—Who will guarantee it to be the same butter, if only the tub is stamped ? Could not the butter be changed in such a case ? To avoid fraud of every kind, there should be a stamp on both tub and butter.

M. Vaillancourt.—It has been suggested that the date of making should be marked by means of a number corresponding with the day of the year ; thus, goods made on the 1st January would bear the number I, those made May 1st, and July 1st, Nos. 121 and 182, respectively, and so on up to 365.

Mr. Fisher.—That is exactly my own idea.

A Delegate.—Would the trade-mark handed over by the gouvernment constitute a privilege for those who registered them ? (1) What would be the rights granted to these factories ?

M. Chapais.—In a circular, directed to English dealers, they are advised to favor those factories that brand their goods. But the brand does not affect the article ; both butter and cheese will be estimated at their true value.

A Delegate.—In practice, if the date of making has to be branded, may it not be feared that there will be a conglomeration of figures ? It seems to me that it will require an immense number of figures.

M. S. Chagnon.—I fancy M. Brodeur is opposed to the marking of the day of the month on butter and cheese ; but I differ from him. Must the month only, or the day of the month as well be required ? I think it better to mark the day of manufacture, for some factories sell there cheese every forthnight, and if it only bore the month of making on it, it would pass as usual.

M. Wm. Tremblay —The Chicoutimi cheese was exported by a Chicoutimi firm. It was branded "Saguenay cheese," and was also stamped with the month of making. This year, the exporter got the same price for it as Ontario cheese fetched. If our cheese realised so high a price this year, it is due to its being branded with the making-month ; and, for my part, I do not hesitate, after this experience, to recommend the use of factory-brands, and the marking of the date of making on the goods. The Chicoutimi cheese sold for 10 cts. a pound, in September, paid at the factory.

M. J. D. Guay, of Chicoutimi.—Would it not be better to adjourn this discussion, as was proposed this morning ?

Mr. Macdonald, M. P. P.—It would only be to have it all over again. If the mark and the brand are both desired by the English dealers, why not let them have them at once.

Mr. R'Haven.—The date of manufacture should always be marked, because the English dealers, who do not like July and August cheese, believe that the buyers store away their June, July, and August cheese, and sell it in the fall as September make.

Mr. Macdonald.—Then, if these marks are injurious to summer cheese, they would be beneficial to that made in the fall.

M. Wm. Parent.—If it be necessary to stamp the month on the cheese, it is also necessary to stamp the day, since the market changes every fortnight.

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(1) *Privilège* is rather a preferential right or franchise. A. R J. F.

M. Wm. Tremblay.—Would it not be better to stamp the name of the factory than the number of the order ? (*numéro d'ordre*).

Several voices.—No ! No !

Mr. Fisher.—We have submitted four questions, this morning, to the meeting, to all of which the reply has been in the affirmative. Are there any of you who wish to change their answer ?

Several voices.—No changes !

M. Guay.—Then, the decision is this : instead of the date, the day of the year is to be marked. M. Vaillancourt, an exporter, views this change favorably.

The Hon. S. A. Fisher, being obliged to leave the convention in the afternoon, requested M. Chapais to take his place in the chair.

ADDRESS OF THE HON. SYDNEY A. FISHER.

Minister of Agriculture.

Mr. Chairman and Gentlemen,

I did not expect to have to address you to-day, and I trust you will excuse me for appearing before you without having made due preparation for that purpose.

In addressing you, I am about to speak not only as a member of the Dairymen's Association of the province of Quebec, but also in my capacity of Minister of Agriculture of the Dominion.

I had been a member of this Association for a long time, when I was called upon to occupy the post of Minister of Agriculture; I had even been for many years one of its directors, and the Association had done me the honor to elect me its Vice-President. I therefore have a double reason for thanking the Dairymen's Association of the province of Quebec, for my selection, first, as a director, and secondly as its Vice-President. And, now, I have no intention of ceasing to make one of this society ; I adhere firmly to my title of member of the Dairymen's Association, for I am, above everything, a farmer ! This is a fact that I do not mean to forget in the discharge of my new duties. Unfortunately, my numerous occupations, as Minister of Agriculture of Canada, will no longer allow of my serving the Association in the capacities of director and vice-president, but there are other services that I can render you, and I believe I shall be able to work for the advancement of dairying in the province of Quebec in a far more effective degree than I have done in the past.

I am a farmer, and interested in the success of the dairy industry, and that is the reason why Monsieur Laurier did me the honor to appoint me minister of agriculture. I am proud of owing that position to my title of farmer, and not to political reasons.

It is on dairying that the success of agriculture, in Canada, now reposes. Since our farmers turned their attention and their efforts to that side, we can regard the future with confidence, and be sure of success.

We are right in making cheese. Canada cheese is the sort most in favor with the English dealers, and the exports that we have forwarded this year to Britain are the greatest that Canada has ever seen. The prices, too, have been very good. This year, the Dominion of Canada has furnished more than half the cheese imported by the English for their own consumption. Our cheese, therefore, has acquired a reputation, but our butter-trade is still behind hand. We must do for our butter what we have done for our cheese.

We have already made some progress in this branch of dairying, and, this year, we have exported a great quantity of butter: more than double what we sent out last year. But it is not only in quantity that we have improved our butter-trade; the quality is greatly improved as well. We must feel proud of the success our butter has met with, this year, on the English market. The ministry of Agriculture, over which I preside, has now two or three creameries in the N.-W. Territories, and we exported, last season, from the district of Saskatchewan to England, a large quantity of butter, which sold on the English market, after a voyage of 7,000 miles, at the same price as Danish butter, namely, 24 cts a pound; the highest price, that is, that Canada butter has ever fetched on the English market And this butter came from the N.-W. Territories, the transit occupying nearly six weeks.

If we have arrived at this result, it is because we have been able to keep this butter at a uniform temperature, from the day of churning till the day of sale. By means of "refrigerators," in the creamery, on the cars, and on the Atlantic steamers, this butter was always kept in a temperature below 32° F. It is through such precautions that our butter was delivered in a *perfectly fresh state.* You see, now, what must be done to increase the price of our butter in England, and to take possession of that market. I am perfectly certain that if we can succeed in establishing refrigerators in which to keep our butter from the day of making till it is on sale, we shall succeed without difficulty in raising its price two or three cents a pound. You can obtain this result if you give your mind to it.

I have already made arrangements to complete this chain of refrigerators which is to wait upon our butter from the factory to the English market. I have already offered a grant to those creameries that shall construct a well arranged refrigerator. For next season, I have agreed with the railroad companies to have, on each line, two or three times a week, well fitted up refrigerators. In the large towns, where the vessels load, such as Montreal, Quebec, Halifax. etc., we shall have stores with refrigerators, where butter and other products will be warehoused, until the day of their leaving for England. There will also be refrigerators on the steamers; and, thus, you will have all the advantages possible of sending your butter to England

in the best condition. I felt that it was the duty of the government to make these arrangements in the interest of the butter-trade.

Our great difficulty is that our butter loses its goodness during the voyage. We can make good butter, as good as the Danes and Normans make, and if, up to the present time, we have not been able to compete with them, that is due to the bad treatment our butter had to undergo during its long voyage to England.

Still, I believe that our butter suffered greatly in quality, even before it left the creamery, on account of the inferiority of our ice-houses. The owners of factories will never realise the highest market price until they provide good ice-houses, in which to preserve their butter until it leaves the country. Until this is done, butter will continue to lose in quality and therefore in price.

I have no more time to talk with you, and you know how hard it is for me to express myself in French, but I will not leave until I have told you that we have every facility for making good butter in this province. Our Canadian cow is probably the best in the world ; at any rate, she can give a greater quantity of the best milk, regard being had to her cost of maintenance, than any cow in the world. Moreover we have men of experience, who are always ready to teach you how to conduct your dairies ; and, under such conditions as these, I cannot see why we should not succeed as well as the province of Ontario.

I trust that in future our butter will take the first place on the market, and keep it.

I was delighted to hear of the wonderful progress made in the districts of Chicoutimi and Lac St. Jean. Personally, I know nothing of these places, seeing that I have never visited them, but I have obtained information about them from men who have bought butter there, and I am in a position to state that, as far as regards dairying, Chicoutimi and Lac St. Jean now occupy the first rank in the province of Quebec. If these newly settled regions have succeeded in gaining such splendid results on the English market, I cannot see why regions of older settlement and enjoying greater advantages, should not be equally successful.

Before leaving you, I must compliment the Dairymen's Association on this grand meeting. The people of Joliette, too, I must thank for the fine reception they have offered us, and I have only one cause for regret, and that is that I cannot stay here as long as the convention lasts. I have already learned a great deal from these conventions that has aided me on my farm, but, unfortunately, I have other duties that demand my attention. To-morrow, I must be at Kingston, to take part in the annual convention of the Ontario fruit growers.

Once more, I thank you for the pleasant welcome I have met with at Joliette, and I beg to assure you that the success of this convention will be a guarantee of the progress and success of the Dairymen's Association, a member of which I am proud to remain. (Prolonged applause.)

Dr. J. A. Couture.—I rise to discharge a very agreeable duty, gentlemen. Before the Hon. Minister of Agriculture leaves us, I think the Association will gladly adopt the motion of congratulation that I present to you :

" The Dairymen's Association of the Province of Quebec warmly congratulates its late Vice-President, the Hon. Sydney A. Fisher, on his elevation to the very distinguished position of Minister of Agriculture in Canada. His knowledge of agriculture in general and of dairying and breeding in particular, will enable him, better than any other man, to render most efficient services to the country at large as well as to the dairy industry in particular."—(Carried unanimously).

DAIRYING AND ITS RELATIONS.

A LECTURE BY MR. ED. A. BARNARD.

Progress made and to be made.—Some land-marks.—First dairy school.—Some statistics.—Extracts from the census of Canada for 1880, 1890.—*Exports of butter and cheese, from Canada.—Our competitors.—Our goods in England.—Table of statistics.—Report of the trade of Canada.—How to produce at a low price.—Cheap production of milk.—Suitable stock.—Selection of breeders.—Economy in everything.—Dress.—Cheapest way to manufacture.—Bye-products.—Hogs.—Poultry.—Fat calves.—Fresh meat.—Capable assistants.—State of the roads.—Levels, drains, and rounding up.—Hardening the road.—Burnt clay.—Width of the tires.—Municipal road-work.—Earn one's road-rates.—Different questions.—Smaller farms, better cultivated.—Joliette.—The part of Quebec in the Confederation.*

PROGRESS MADE AND TO BE MADE.—He who desires to advance, must constantly cast a glance behind him, in order to see how far he has got, and then, from time to time, he must plant piquets to help him to travel safely along the road that remains to be passed over.

Our provincial Dairymen's Association is celebrating to-day its fifteenth annual convention. And I, a humble mile-stone, placed by the Council of Agriculture, from 1869, in the road of agricultural progress in this province, am here to request you to carry your thoughts back to that already far off time, when the " Semaine Agricole ", the organ of the Council, was established; after that, to 1870, when, under the auspices of the same Council, the first lecture, on dairying, was delivered. It was in the Town Hall of Bagot, where were collected a good number of the clergy as well of the most distinguished farmers from the neighboring counties. One of the most respected of our directors, Mr. Brodeur, now present, took an active part in that meeting.

And this reminds me of the numerous friends of progress who have vanished from the scene since that time, and that the date of our own departure cannot be far off. So, let us at once set to work to make a brief review of the past and pre-

sent, in order to have behind us a mile-stone that shall, in the future, be an assistance to our successors.

A FEW MILE STONES.—Since I have mentioned the word " jalons ", allow me to bring to your remembrance some others that are not without their importance.

In 1880, during the Chapleau ministry, the speech from the throne emphasised the advisability of developing dairying in this province. It expressed a hope that the export of cheese, made in the province, would, in the long run bring in to our farmers a sum of about 5 million dollars. These prophecies then appeared to be visionary, and were made the subject of adverse debates in the House. It will appear, from subsequent statistics, that these promises have, since that time, been fully realised.

THE FIRST DAIRY-SCHOOL.—It was in 1881, before even the creation of this Association, that the first school of to making butter and cheese in this province was established. If I am right, this school, started at St. Denis, Kamouraska, by the active and patriotic energy of another well known director of the society, M. J. C. Chapais, then editor of the Journal d'Agriculture, was the earliest school of the sort in America, and, even in the whole world.

A FEW STATISTICS.—In 1869, there were no creameries, such as we have now-a-days. At that time, a few scattered cheeseries, on a very humble scale at first, were beginning to trace out for themselves an up-hill road in Ontario, a few, too, were striving to get along in our province.

The statistical reports of Canada, of that date, show the following facts :

NUMBER OF CHEESERIES

MENTIONED IN THE CENSUS OF 1870 FOR OUR PROVINCE

THE WAGES THEN PAID AND THE VALUE OF THE PRODUCTS.

COUNTIES.	Number of factories.	Wages paid.	Value of the products.
Argenteuil	1	$ 400 00	$ 4,689 00
Brome	6	2,109 00	45,510 00
Compton	1	380 00	5,564 00
Missisquoi	10	2,501 00	53,724 00
Richmond	1	76 00	416 00
Shefford	1	300 00	2,999 00
Stanstead	2	712 00	8,474 00
Vaudreuil	1	272 00	1,125 00
Verchères	2	333 00	1,460 00
Total	25	Total value...	123,961 00

I, myself, saw the principal cheesery mentioned above in Verchères. It was my friend, Mr. Marc Ducharme, who keept it up, he alone, with his herd of 40 cows. It may then be said with truth that in none of our French counties were there cheeseries, such as we see now, established in 1870.

Now, according to the census of 1890, there were, in this province, 617 cheeseries and 111 creameries; while in the rest of Canada there were only, in all, 59 of the latter.

In 1895, by the last report of our association, the province reckoned 1407 cheeseries and 307 creameries; an enormous increase; but is it progress? I do not fear to assert, that it would be all the better for us if we had one-third fewer. We should doubtless make less butter and cheese, but of better quality, and the goods would perhaps sell for as much as is obtained for present products, since good articles are being more and more sought after and sell for higher prices every day.

EXTRACTS FROM THE CENSUS OF CANADA, 1880 AND 1890.

		Butter.		Cheese.	
Year		Number of factories	Value of the products	Number of factories	Value of the products
1880	ONTARIO.....	23	$212,480	551	$4,668,078
	QUEBEC	22	124,698	140	739,105
	Canada	**46**	**341,478**	**709**	**5,464,454**
1890	ONTARIO	45	300,113	893	7,269,225
	QUEBEC	111	555,932	617	2,362,595
	Canada	**170**	**913,591**	**1565**	**9,784,288**

It would appear from these figures that Ontario and Quebec have the bulk of the creameries and cheeseries in Canada between them, and that, in 1890, Quebec had already made marked progress. Since that date, we have no official figures to guide us exactly; but the enormous increase in the number of our factories, as stated by the Dairymen's Association in 1895, namely a total of 307 creameries and 1467 cheeseries, leads me to believe that, as regards butter, we make now three times as much as Ontario produces, and almost as much cheese! Now, according to the last report of the trade of Canada, our cheese exports are about $12,000,000 for Ontario and Quebec alone; so the dairy industry has well and fairly kept the promises the Chapleau ministry made in its favor.

The following statistics are, especially as to butter, a valuable source of instruction for us:

EXPORT OF BUTTER AND CHEESE (PRODUCTS OF CANADA).

	Butter.	Cheese
1860	$ 792,621	$ 13,675
1870	2,353.570	674,486
1881	3,573,034	5,510,443
1890	340.131	9,372,212
1891	602,175	9,578,800
1892	1,056,058	11,652,412
1893	1,296,814	13,607,470

(See : *Butter and Cheese;* special report, pp. 21 and 27).

Here now are the official figures of the reports of the trade of Canada for the last three years. I am indebted for them to the kindness of Mr. George Johnson, statistician to the Department of Agriculture, Ottawa :

	BUTTER.		CHEESE.	
	Quantity.	Value.	Quantity.	Value.
1894	lbs. 5,534,621	$1,095.588	lbs. 154,977,480	$15,488,191
1895	3,650,258	697,476	146,004,650	14,253,002
1896	5,889,241	1,052,089	164,689,123	13,956,571

Let us observe, en passant, the lesson taught us by the sales of cheese in each of these three years. Up to 1894, the average price of our cheese maintained itself at about 10 cts a pound, on the English market. In 1895, it begun to fall. In 1896, we sold ten millions of pounds *more* than in 1894, and we were obliged to be satisfied with $1,531,520 *less*. This proves clearly that we were making too much second-rate cheese; in other words, we have started too many small, badly fitted up factories, and we are suffering for it. For goodness' sake do not let us ruin ourselves at this game.

OUR COMPETITIONS.—The following figures, taken from the Official Reports of the trade of Great Britain, show how trifling our success in the butter-trade; and what our competitors were doing in the same years.

They show : 1o the gradual increase of the imports of butter into England :

2o Canada's exports during the same years ;

3o The quantities exported by Denmark and Australasia, respectively.

	TOTAL IMPORTED BY ENGLAND.		TOTAL COMING FROM CANADA.		TOTAL COMING FROM AUSTRALASIA.		TOTAL COMING FROM DENMARK.	
	lbs.	$	lbs.	$	lbs.	$	lbs.	$
1885	268,953,776	* 56,275,749	4,045,776	707,866	165,088	29,390	42,289,632	10,309,206
1886	172,879,392	39,621,665	3,530,464	590,108	.....	.....	44,862.272	10,681,869
1887	169,471,008	38,983,820	3,659,376	680,341	694,512	107,120	54,604,032	12,987.644
1888	187,200,496	43.376,819	1,042,384	201,733	2,885,800	488,005	67,695,264	16,227,238
1889	215,918,304	49,857,229	2,545,984	463,107	1,827,280	367,136	75,868,576	18,215,298
1890	227,104,304	51,581,060	1,701,840	296,180	4,535,776	821,192	92,371,888	21,521,651
1891	239,187,984	56,410,424	5.182,576	912,004	6,094,816	1,318,283	98,135.632	23,680,431
1892	244,497,008	58,230.591	6,671,952	1,244 173	9,802,240	2,308,401	96,715,584	23,597,177
1893	260,677,088	63,441,126	5,833,920	518,495	18,977,168	4,331,604	104,696,134	26,262,404
1894	288,381,520	66,947,078	2,339,344	448,352	32,714,864	7,114,636	123,479,216	29,178,872
1895	316,476,384	70,870.019	4,362,188	763,170	35,099,676	7,087,311	130,130,240	29,593,604

* In 1885, these figures still included the imports of oleomargarine, which were only distinguished by the imports of butter in 1896.

It will be observed the figures given in England of the imports from Canada differ from the figures of the Canadian Official reports. This is due: 1o to the fact that in Canada the fiscal year begins on the 1st July, while in England it begins on the 1st January. It is equally clear that the valuation of Canada is higher than the valuation of England. But for the purpose of comparison, we may say, as an irrefutable statement: 1. that the English imports of butter increase year by year; 2. that Australasia, situated under conditions of climate, distance, &c., infiniely less advantageous than ours, is out-stripping us in a most alarming way; 3. that Denmark is equally improving in regular steps, while we have made no advance for ten years, and that our exports of butter are now only about one-fourth of what they were in 1881!

OUR PRODUCTS IN ENGLAND.—The following table is of great importance to us, and deserves serious study. It shows the value of the English imports of certain products that Canada can supply; and the quantity of those products that, in various times, Canada has supplied to great Britain.

I wish to draw your attention, among other things, to the importance of the English imports of animals and their products.

Now that the government seems to be decided to assist our commerce, by establishing modern refrigerators on the railroads and steamers, the trade in Canadian fresh meat exports cannot fail to be, in future, at least as important as the trade in butter and cheese.

This table shows us, too, the progress made in Canada by the cheese-trade from 1870 to 1896; but it demonstrates also the fact that we are at an epoch of retrograding as to prices obtained. As to butter, it is clear, from what precedes, how sad a figure Canada has made in the past. When one thinks of the trade of Australasia, in products that we ourselves could so advantageously supply, it must be confessed that we have allowed ourselves to be outstripped in most inexplicable manner, if we consider all the advantages Canada possesses over Australasia. One thing is certain; we have to meet, in the English market, competitors in the dairy-trade from all parts of the world; and this unrestrained competition will only give us leave to occupy an enviable position in that emporium, as long as we furnish it with choice articles at the lowest market price!

STATISTICAL TABLE.

IMPORTS INTO ENGLAND OF DIVERS AGRICULTURAL PRODUCTS.

(Extracts from the official English reports). Value in dollars.

ARTICLES.	TOTALS.			CANADA'S SHARE.					
	1893.	1894.	1895.	1893.		1894.		1895.	
				* %	Total.	* %	Total.	* %	Total.
Animals, live—Total	**30,901,040**	**44,222,281**	**43,620,816**						
Oxen	30,128,420	40,014,951	34,788,701	23 %	6,988,471	13.8 %	5,525,565	22 %	7,735,029
Cows	238,366	288,485	151,054	58 %	138,779	51 %	147,658	11 %	16,240
Sheep	430,699	3,915,464	8,672,077	7.5 %	32,995	29 %	1,148,642	21 %	1,873,638
Meat—Total	**108,662,767**	**110,557,077**	**115,639,289**						
Beef, salted	1,357,321	1,667,791	1,393,877	.....	.....	.....	.....	31 %	426,174
" fresh	18,635,850	20,499,593	20,800,541						
Mutton, fresh	18,846,344	21,120,070	22,345,266	*71 % *	13,490,645	38 %	8,099,415	69 %	15,115,555 * *
Bacon	41,254,300	39,328,111	38,616,663	.....	.....	.....	.....	9 %	3,450,258
Ham	14,061,076	13,484,943	14,096,226	.....	.....	.....	.....	1.8 %	253,467
Other salt pork	1,408,793	1,632,480	1,312,719	.....	.....	.....	.....	2.8 %	81,136
Pork, fresh	2,216,222	2,123,797	3,236,310						
Other meats, fresh and salted	1,945,572	1,998,173	2,386,551						
Canned meats	7,517,452	7,253,239	9,924,819	.....	.....	.....	.....	3 %	309,757
Rabbits	1,399,811	1,448,885	1,535,322						

Butter	62,046,230	65,466,841	69,303,044	(1) 7 %	4,235,829	10.5 %	6,956,790	10 %	6,930,696
				(2) 1.5 %	948,306	0.6 %	438,459	1.1 %	746,296
Cheese	25,107,866	26,635,584	22,739,891	(1) 1.8 %	468,675	2.5 %	669,035	4.6 %	1,068,573
				(2) 51 %	12,844,704	49 %	13,081,723	49 %	11,357,820
Poultry	2,816,636	2,339,501	2,944,133						
Eggs	18,855 023	18,420,491	19,476,736	1.9 %	367,337	2.4 %	450,713	3.9 %	762,117
Horses	1,833,225	2,666,303	4,489,495	.....	.....	.....	.....	40 %	1,893,069

[ ] The figures thus enclosed apply to Australasian exports. Canada as yet exports no fresh meat at all.

(1) These lines apply to butter and cheese exports from Australasia.

(2) These lines apply to the same exports from Canada.

* In these columns are the percentages that represent the share of Canadian exports in the English imports.

Report on the Commerce of Canada.

Articles.	1871.	1881.	1891.	1894.	1895.	1896.
Butter exported — Pounds	15,439,266	17,649,491	3,768,101	.....	.....	.....
Tubs	.....	.....	.....	32,055	69,664	157,321
Value	$3,065,229	2,573,034	602,175	395,790	870,800	1,928,000
Cheese exported — Pounds	8,312,145	49,255,523	106,202,140	154,977,480	146,004,650	
Tubs	.....	.....	.....	(1,712,715)	(1,710,715)	1,726,226
Value	$1,109,906	5,510,443	9,508,800	15,488,191	14,253,002	15,000,000 (estimated)

How to produce at a low price.—This question of the economical production of butter and cheese at the lowest cost-price, has to be divided into several different chapters, all of great importance to us : 1. the production of milk, under the best conditions ; 2. the making of butter and cheese, of superior quality, at the lowest cost ; 3. the most profitable utilisation of the by-products of dairying ; which by-products, by bringing a certain considerable profit to the farmer, may amply supply the place of those profits, now lessened from what they were, claimed from the sale of the butter and cheese. This diminution in the sale-price seems to us to be a rule with which we must reckon for the future, whether we like it or not. Lastly, 4. we equally must reckon upon having to improve our roads, both public and private, as well as our great main channels of communication, for unless this is done, the most perfect articles of consumption can never reach our ports of shipment, and, thence, the best markets.

And so, all you who are interested in dairying, it is greatly to your interest to seek earnestly the solution of that fourfold problem, a solution on which rests the future success of an industry specially favoured by our climate, our geographical position as to the English market, and above all, by our natural facilities of economical carriage over the cool waters of the North-Atlantic Ocean. I can only allude in a few words to the various objects of inquiry, that it would require a whole volume to treat properly. Let us then now briefly consider, one by one, the chief points that these different problems suggest.

Economical production of milk, presupposes thoroughly cultivated farms. This branch of the desired progress, desirable as it is, can only be brought about by farmers who are intelligent, industrious, and, above all, economical ; men who perfectly understand their business, and who will not undertake to crop more land than they can adequately manage. For, in truth, the economical production of milk demands : the improvement of our meadows and pastures ; the growing of rich, succulent, abundant fodder crops, in order to ensure, at a cheap rate, the food that is indispensable to the production of all the milk that well selected, well fed cows can be induced to give.

Moreover, the farmer must understand the nature and value of the different food-products, so as to be able to select those that will leave behind them the greatest amount of net profit. Lastly, he must know how to market the overplus of his farm, and to buy, under certain favorable circumstances, the by-products of manufactures, which will enable him frequently to reduce, even strikingly, the cost of production.—There, you have so many problems that each of you has an interest in solving. And to value them, you must have time for meditation, to calculate carefully and plan wisely, and, lastly, carry out at the right time, at the least cost, all the operations indispensable to perfect success. Such a series of intellectual work, of manual labor, leads us to a fresh question that needs investigation ; briefly, it is this : have not most of the farmers of this province more land than they can farm profitably, for themselves and their families, to that degree of

perfection, that is so useful and beneficial, and that we have just been describing. We shall presently say a word or two on this point.

PROPER CATTLE.—To keep the right kind of stock is also another factor indispensable to the economical production of milk. Every good farmer, who is observant, knows well that some of his cows give, by the year and with just the same food, much more milk than the rest. There is no doubt that, with time, care, and prudent management, we can greatly improve our herds, and, within a moderate space of time, cause them to give economically a more copious yield of richer milk. For a proof of this, I will quote, with great pleasure, the articles, engravings, and tables that our very active and earnest Secretary, M. Castel, is now publishing in the "Journal d'Agriculture." You will then see what is the type of cows to be reared, or kept, as the most profitable milkers. The results displayed in the table, p. 34, of the Journal of September, will prove to you that some cows produce butter, throughout the year, at a cost for food of 8 $\frac{6}{10}$ cts. the pound, while the butter of other cows, with the same care and food, cost, throughout the year, 14 $\frac{2}{10}$ cents a pound. Here, there is a margin of 63 o/o, constituting a marvellous difference in the results. In fact, the farmer whose herd yields butter at 8.6 cents would be making lots of money, even at the low price our butter is now selling for, while the common type of herd would be leaving the farmer a loser. These are positive facts, and are most important to each of us. The articles of M. Castel put me in mind of the excellent results obtained a few years ago, at the Sacred-Heart Hospital, with our Jersey-Canadian cows ; they were published in the annual report of the Association, for 1891 I think. I am convinced that, if our farmers really desired it, before ten years were passed, we could find, in each parish of the province, many a herd of milch-cows, that might be classed among the best and most economical in the world. This question of the national value of our best herds of milch-cows deserves a special study, which, I hope, will soon be undertaken, in a regular manner, by the officers of our provincial association of "Breeders of Canadian and Jersey-Canadian Stock."

THE SELECTION OF BREEDING STOCK is of the greatest importance to the welfare of our herds. If each of our farmers, worthy of the name, would take the trouble, every year, to eliminate from his herd the least profitable of his cows ; and, next, to rear, from his best cows, the heifers got by a thoroughbred bull, selected on account of the milking powers of his maternal ancestresses, for several generations ; and if these heifers, well cared for from birth, were made to calve at about two years old ; the complete transformation of his herd would be very rapidly brought about ;—especially if he would add, to the results of careful breeding, the precautions required for the production of an economical, abundant, and rich flow of milk, during at least ten months of the year.

ECONOMY IN EVERYTHING necessarily plays a very great part in this so complex question of the production of milk, and, consequently, of butter and cheese. I mentioned just now the calculations concerning economy that the farmer has to

workout, step by step, about the very multifarious operations of well conducted agriculture. But the farmer is not the only one in the house, and true economy, well understood, requires the active concurrence of the entire family. This subject, so serious, so important, reminds me of a very pungent anecdote, related by Mgr Laflèche himself, at our annual convention at Three-Rivers, in 1887; an anecdote that he related with all the charm and eloquence that belong only to him: A *voyageur* of the North-West, an old fellow-traveller with his Lordship, was relating to the *Père Missionnaire* his difficulties and his sufferings. His family was numerous, and the poor fellow, so full of feeling, was wretched at not being able to supply the pressing wants of each member. The Bishop, then a simple missionary, did his best to give him good advice; but the *voyageur* remain sad and thoughtful: "Ah! mon père," said he at last; "it's all very well for the cock to scratch; if the hen does not care to pick up the grain or worms, *ça va ben mal.*" Yes, gentlemen, all the efforts of economy and industry on the part of the farmer will be of none effect, unless the wife and children, abroad as well as in-doors, and day after day without intermission, bring to his aid intelligent-labor, founded on a well thought out, a perfected system of economical management.

DRESSING ONESELF ACCORDING TO ONE'S BUSINESS is another point that I think should be thoroughly sifted. The farmer who is proud of the grand part that Divine Providence has entrusted to him on earth, cares not to ape the manners and dress of the most ignorant of the townsfolk, who fancy too often than they are distinguishing themselves by wearing expensive clothing, by no means suitable to their position. It will be long ere I forget a remark, full of good sense, made by a county curé, a man of observation and of great earnestness. He said one day in the pulpit, when speaking of this matter: "*Tenez*, my dear flock; take a pride in dressing in accordance with your position; but especially when you come to town on business. Nothing is more respectable than an intelligent farmer. He is easily recognisable among a crowd, and all sensible men admire and respect him. On the contrary, the townspeople often amuse themselves — I have done so myself — especially on Sunday, by observing the servant girls and workmen dressed in their Sunday best. The most ridiculous of all are those who wear a lot of costly clothes, that they wear all the more clumsily the more they are in contrast with their daily work. How vastly are those who dress themselves up in this absurd style wanting in taste and judgment!" This is the observation made by the curé of my parish, and he was pretty right!

THE MOST ECONOMICAL WAY OF MAKING butter and cheese also involves several problems that demand investigation before a thoroughly satisfactory solution can be found. But as this subject merits treatment by specialists, I shall say but a few words upon it. We have, again this year, a proof of the attention that every detail of the manufacture insists upon. Thus, the use of badly made rennet is, at this very moment, casting a really ruinous discredit on the whole manufacture of cheese in this province. The cry has again arisen of *French cheese*, the scare-crow of the

English dealers! When shall we have, for every one of the factories of the country, an indelible trade-mark, that shall carry to the British consumer the address of the careful maker, who puts all his skill into each detail of his work, and sends off his goods at once, so as to always give the greatest satisfaction to his customers? Then, and only then, we shall win, on the foreign markets, the reputation our best goods deserve. Then, "French cheese" will become, I trust, synonymous with the best Canadian cheese.

THE BY-PRODUCTS of dairying are of such great importance that, before long, it will be asked, which will be the chief industry, and which the second industry, in our farms that at present are engaged principally in dairying. Thus, our exports of butter and cheese to England for 1895, were of a value of $14,011,000. And though we have not yet any refrigerators for the dispatch of fresh meat, we export of:

Bacon, hams, and other pig-meat	$ 3,839,000
Eggs	783,000
Live stock	9,902,000
Horses (41 o/o of the English imports)	1,922,000
Total	$16,446,000

Now, the English imports of butchers' meat alone amount to $166,705,000, and Canada, if it gives its mind to it, could furnish a third of this. What will it be, then, when we enjoy the facilities that form the riches of Australia, five times further off than we from England, and yet exports mutton, fresh and in quarters, to the value of about $18,000,000, while we do not export a sou's worth in that form.

THE PIGSTY, if it is managed with economy, using skim-milk or whey, with clover and other green fodder, always gives the skilled farmer almost as much *money* as the butter or cheese sold. Before long, fresh pork, for export, will be worth at least 25 o/o more than it is now.

POULTRY is also a very important branch; for the buildings and the labour, belonging principally to dairying, can be utilised very profitably in the production of fowls and eggs. The importance of this line of by-products can be proved by the table already quoted better than by all the arguments that can be adduced.

FAT CALVES for England will become of much greater importance as soon as the freight-steamers fitted up with refrigerating compartments shall have been improved and rendered economical.

FRESH MEAT of all kinds can from the present time be produced on our farms, without interfering with dairying, especially in the form of lambs and of mutton in general. The boats are already providing refrigerators, and the system will be put into operation generally as soon as navigation opens. Let us prepare to give the plan a fair trial on a small scale. One thing is certain; if we enrich our pastures, by the means at our disposal, from that time we shall feed two or three head of stock where now we only feed one. All that wealth of grass will need to be

closer fed, by animals of various kinds, sheep for instance, after the cows, so as to ensure that the herbage shall always be fresh and tender.

As a very profitable addition to dairying, let us mention here the incomparable value of our breeds of registered Canadian and Jersey-Canadians. Every farmer who knows his business will find it pay to rear his own heifers. Through prudence and interest he will be led to rear more than the keeping up of his herd requires. This will enable him to kill off every year his worst milkers, so as to retain only the best. As soon as our registered herds shall receive from the directors of our exhibitions the attention they deserve, we shall only have to exhibit our best registered stock to create a really great demand for our Canadian and Jersey-Canadian bulls in each of the Canadian provinces and even abroad. This question of doing justice to our cattle, remarkable as they are, has not yet received the attention it merits.

The roads, public and private, are considered, and with reason, to be a true indication of the material civilisation of a people. Indeed, a country that aims at prosperity cannot avoid the necessity of providing itself with improved and cheap means of communication ; for economy demands the carriage of persons and goods at the lowest possible rates. Now, bad roads, unimproved communications, make freight very cossly, and often impossibly so, when viewed economically. Last year, our association got up a provincial society to promote good roads. Thanks to the presence among us of the Hon. Louis Beaubien, Commissioner of Agriculture, this movement received at once a strong impulse. The use of machinery for road-repair, as well as of stone-breakers and rollers, has been offered to municipalities desirous of mending their roads. The movement is important, and our association must continue to take an active part in it ; for without our mother-association, the "Good Roads Society" will be difficult to establish in this province. The thing seems to me of such importance that I shall hope to submit to you a resolution on the subject at the end of this lecture.

Levels, drains, and rounding-up, are the three indispensable rules to be applied to the improvement of roads. If the hills are too steep, the horses cannot draw their loads. It is settled, now, that in general the rise ought not to be more than one part in twenty, especially when the pull is a long one. This rule was, unfortunately, entirely ignored by those who drew out our older roads. And how many *cahots*, hills, that cannot be climbed up after rain even with the lightest load ? (*cahots* must stand for *casse-cou*, A. R. J. F.) ; how many serious accidents are caused here, year after year, by bad roads ? And yet it is comparatively easy to climb the steepest hills ; but, it must be by lengthening the distance a little, so as to rise gradually by slants and steps, where the straight line is not practicable. (Slants and steps: *biais et échelons*, A. R. J. F.). A splendid instance of this is afforded by the road round the mountain of Montreal, where carriages with three and four seats ascend the hill, at full trot, owing to this arrangement of "slants and steps."

The drains are among the most important things in the road. Even maca-

damised roads cannot be kept in good order unless the drainage is perfect. This principle is true everywhere, and in Canada particularly true, as the hard-frozen state of the ground for several months ruins our best roads, when the drains have been neglected.

A PROPER BUT MODERATE ROUNDING of the road helps the drainage, by allowing the road to dry up quickly, especially after heavy rain, the thawing of snow, &c. But this rounding must not be overdone, or else the carriages, following always the same tracks in the centre, will eventually make deep ruts, and they getting filled by rain, will soon destroy the utility of the road.

THE HARDENING OF THE ROAD is also important. All civil-engineers agree in asserting the immense advantage of a perfectly smooth, hard road. Thus, a draught-horse that can pull a load:

on a smooth, perfect road, in a given time of.....	5,000	lbs., can only pull:
on a perfect macadamised road.....	4,000	"
on the same when muddy.....	2,500	"
on the same when rough, uneven.....	2.000	"
on a good earth-road.	1,200	"
on the same when muddy.....	600	"

And so will the ascent of hills, the horse that is pulling forth all his strength in a given time, on a level,

Loses	10%	of his force	in a rise of	1%	only.
"	19%	"	"	2%	"
"	28%	"	"	2½%	"
"	60%	"	"	5%	"
"	75%	"	"	10%	"

Hence, the importance of prolonging the ascents, and hardening the roads, even on our farms, as much as possible. For large towns, traffic is more easily carried on when the roads are laid carefully with hewn stone; though for general heavy cartage broken stone makes, without dispute, the most economical road-bed. Next comes well rolled gravel; and then dry earth-road, well consolidated. In an earth-road, a few inches of sand on the clay, or, in roads that are too sandy, even a light layer of clay, are the best means of improvement we can suggest, till we can do better on a large scale.

BURNT CLAY.—In clay roads, when they cannot be macadamised at a reasonable cost, civil-engineers recommend that clay should be burnt, on the spot, just as charcoal is made. All that need be done is to get an armful of dry wood, place it by the ditch-side, having previously covered it with a few turves from the same spot, and cover it with clay from the sides of the ditch. The heap is allowed to dry for a day or two, and on a fine day is set on fire, and, as soon as the whole is burning freely, more clay is added by degrees. By thus burning all the organic matter, a mineral or metallic residue is obtained, all the purer the more thoroughly the fire has done its work, and the less sand existed in the clay. The centre of the road is to be

covered with about 18 inches of this new metal, and the roller must be used between each layer of it as it is thinly laid on. According to the civil-engineers, this economical road is as good as macadam, especially if the drainage is perfect ! It is very certain that it must be tried next summer, and the results published at once, more particularly if they are satisfactory.

THE WIDTH OF THE TIRES is a particularly interesting question to farmers. Over our meadows, pastures, stubbles, etc., broad tires enable larger loads to be carted without making ruts. On the contrary, everywhere they go, they act as a roller, and consolidate and improve the road. (1) And for this reason, in certain advanced countries, it is the practice to give a premium for the construction of four-wheeled vehicles, with broad tires and axles shorter in front than behind, so as to enable each of the wheels to act as a roller as it travels along.

MUNICIPAL ROAD-WORK.—Wherever the roads have been radically improved, recourse has been had to municipal law which offers every facility for that purpose, and even permits loans on long terms. Such loans are obtainable nowadays on unusually favorable terms. Let us hope that certain municipalities in this province will do without delay what is being done generally in Ontario for the stoning of the roads. For that purpose, it is only necessary to find some progressive public men, possessing the confidence of their constituents, and who, from their previous studies, are in a position to teach what proceedings should be followed, and to show the certain benefits that each of the parishioners is sure to derive from them. Under such conditions, the loans thus contracted and employed will be covered, a hundred times over, by the advantages which have followed from their employment, as a means whereby the roads have been well made and kept in good repair.

TO EARN BY ONE'S OWN LABOR the cost of these improvements in road-making, under a good system of inspection, is an excellent way to encourage the poorer class to vote in favor of a thorough improvement of the roads. Thus, by means of loans, the poor will be able to earn at once more than the value of their future assessments, and the more wealthy will equally ensure to themselves an improvement that, in the long run, will contribute to their means and prosperity.

THESE DIFFERENT QUESTIONS, of pressing public utility, it seemed to me advisable to submit to you, gentlemen, to you who, with your Association, are now, as you have been in the past, the first to move in every important measure of progress concerning the agriculture of this province. Allow me, now, to give you one parting counsel :

LESS LAND, BETTER FARMED :—There, in short, is the secret that will enable us to put into practice, without delay, all the improvements I have taken the liberty to propose to you. Indeed, as regards the greater number of farmers, who own much more land than they have capital and hands enough to cultivate properly, for

(1) In the thirties, every turnpike in England had a list of charges outside, where were marked the different rates to be paid by broad-and narrow-tired vehicles.—A. R. J. F.

these men, I say, the best means, comparatively easy, to get on, would be to try to establish as soon as possible two, or even three families, on the same farm that is now only able to support one. How many young men get discouraged on their father's farm, and leave it, because they see too much work before them, and no hopes of establishing themselves there permanently. This is the main stimulus that drives so many to emigrate from our rural homes, and the fathers of families should carefully ponder it. By thus economically establishing their sons, and eventually their future sons-in-law, around them, and by improved cultivation, better cared for herds, well made roads, by, in general, tripled and quadrupled crops, the families would multiply on the paternal estate, and the old parishes, instead of becoming poorer and less populous, would perceptibly improve. With more hands at work, a better system, manure carefully preserved ; the ditch-sides, bog-earth, and those materials that in general are lost for want of attention, would be all made into compost with quick-lime. It is thus that would be prepared the mould-composts so indispensable to the improvement of our meadows and pastures ; ashes. bone-meal, Canadian superphosphate, potash, would all become sources of wealth for us, by tripling and quadrupling our crops, without any great increase of expense ; in short, the province would become more populous, more enterprising, more wealthy. Then, would the overplus of our rural districts establish itself on a large scale on the farms open to settlers in our province. This movement of genuine progress in our country parts, accompanied by technical instruction which is the proper fore-runner of such progress, will give us more public men who are dependent on agriculture for subsistence. Then, shall we see Colonisation take a grand flight, through the opening up across our virgin forests of cheap roads, which will enable the settler to exploit the forest while he, at the same time, is clearing his land ; as has been done, and is still being done so successfully, in Sweden and in Norway, countries in all respects far less favored than our province Such colonisation, manufacturing as well as agricultural, will necessitate the grouping of the settlers, and it is then that our agricultural missioners, at the head of such groups, well assorted, will show the real value of their patriotism, their devotion. Then, will the forest cease to be the enemy most dreaded by the settler, and become his best friend ; the supplier of his daily bread, especially during the arduous labors of his early days of settling.

JOLIETTE, the pioneer of industrial colonization in this province, deserves, especially, a specific word of remembrance. Let us offer to his memory, in this place that he loved and beautified, our most heartfelt tribute of reverential respect. May the country never forget this patriot so full of zeal ; this founder of a great rural centre ; this Canadian genius, whose name belongs to history, and whose initiative, so progressive, ought to find numerous imitators in future ages.

THE PART OF QUEBEC IN CONFEDERATION.—Allow me, before concluding this long essay to lay before you a reflection that should interest all of us in the highest degree. Yes, gentlemen, I ask you ; is the part Quebec has to play in Confederation

properly appreciated by all of us ? If our province develops itself and its resources to the best of its abilities ; if we, all of us, employ the good qualities, I will even say the virtues, with which Divine Providence has endowed us ; then will Quebec soon become more populous, more wealthy, better adopted to mell with the diverse questions of manufacturing industry that are so profoundly important to this province ; then, I say, will Quebec become powerful in influence over the future destiny of our Confederation. Let us not forget that our province is the real pivot on which moves the entire system of Confederation, and that its influence for good depends entirely on the number of our people, and their intellectual, moral, and material development. Our influence, then, will be such as we shall earn by making the greatest possible use of our resources ; by becoming more and more, we and our children, attached to our natal soil ; by our being, in a word, upright intelligent, industrious patriots. Then, gentlemen, the profession of an agronome will reckon in its ranks a greater number of educated, active farmers ; it will be honoured and respected by all those who aspire to conduct our public business ; and then, it seems to say we, all of us, French-Canadians, shall fulfil, to our best ability, the grand mission entrusted to our ancesters, that I condense into the phrase : " Gesta Dei per Francos Canadenses."

EXPORT OF CANADIAN CATTLE.

Dr J. A. Couture.—There is a point I should like to mention here ; it concerns our cattle. You are aware that the export of our stock to the United-States meets with two obstacles : the one, under the form of a 90 days quarantine, that they have to suffer before entering the States, the other, that the Washington government refuses to recognize our herd-book. The States' government will not recognize any of the pedigrees-books kept in Canada, and this compels us to pay, on pure-bred stock exported thither, the same duties as if they were butcher's beasts, while according to law, breeding stock is to be admitted free there as it is everywhere else, The province of Ontario has suffered immensely from this state of things ; this province of Quebec has not suffered so much, though it has been a good deal the worse for it, and I should like to know if, in the future, Quebec will not have to suffer as much as Ontario.

You are aware, probably, that we have exported some of our Canadian cattle to the States. These animals had been prepared, well fed, for a sufficient length of time, and were exhibited at two or three places to the surprise of fanciers. The President, Mr. Barnard, M. Taché and myself received many letters asking for information about these Canadian animals that had so astonished the Americans. The writers wanted to know if it was still possible to get some of the same stock, and at what price. We replied that it was still possible, that it was even easy, but when we gave them the price they would have to pay, and when they learned from their government on what conditions the cattle would be allowed to enter the

States, they "kicked" at the quarantine and at the refusal to recognize our herd-books, which increased the cost-price by 40 °/₀ to 50 °/₀.

We asked the Ottawa government to take up the question generally, and to try to get the States' government to agree to recognize at least our herd-book of Canadian cattle.—Mr. Ross, Secretary of State for the Republic, replied that he could only agree to recognize the herd-books of such cattle as could be proved to be the produce of the country. Now, we consider Canadian cattle to be in very deed the produce of the country, cattle that are not the results of crossing, but the descendants of the original stock imported at the commencement of the colonisation of the land, and preserved in their purity ever since.

Therefore, I ask you to assist us with your influence, in order to convince the authorities that it is their duty to persuade the government of the United-States to recognize the herd-book of Canadian cattle. If we could send our cattle into the States without payment of duty, we could sell as many of them as we cared to sell, and you can see what an advantage that would be to the people of this province. I therefore ask this meeting if it is not their opinion that a resolution should be passed praying the government at Ottawa and the Hon. Minister of Agriculture to do their best to get the government of the United-States to recognize our herd-book. I have prepared the following motion, which I am about to propose, if I can find any one to support it :

MOTION, PROPOSED BY DR J. A. COUTURE, V. S.

"Proposed by J. A. COUTURE,

That the Dairymen's Association profit by the presence of the Hon. Minister of Agriculture of Canada to request him to use every exertion to obtain the recognition of the herd-books of Canadian cattle by the government of the United-States."

M. Wm. Tremblay seconded the motion which was passed unanimously.

Dr J. A. Couture.—There is another point, which I ask your leave to broach.

Mr. Barnard spoke to you about the Chicago fair, and the project we had so fondly nursed of sending some cattle there. He expressed his sorrow at the failure of this plan, as well as his hope that, henceforth, we should be enabled to send stock to the Exhibitions in the States. I agree perfectly with Mr. Barnard on this point, but there is a great obstacle in the way ; there are no funds !

Latterly, while reading the report of the Breeders of Upper Canada, I felt convinced that we might soon realize the desire of Mr. Barnard, had we the same advantages that they possessed. Here, no grant is given to breeders of thoroughbred stock of any kind. It is a general principle to help no one ; each individual must help himself. I do not say that the legislation does not give, from time to time, a few subsidies, but they are given for some special object, and are not renewed. Under these conditions, breeding can only be carried on in a disadvantageous manner. If breeding is to be progressive, money must be had. The Ontario

breeders receive an annual grant of, in round numbers, ten thousand dollars; they are organized, like our own, in societies; there are breeders of sheep, of cattle, of horses, etc., and these societies are divided into as many classes as there are breeds.

This is the position of the breeders of thoroughbred stock in Ontario with respect to the annual grants they receive from the government of that province:

The " Dominion Cattle Breeders' Association "	$1,500.00
" " Dominion Sheep Breeders' Association "	1,500.00
" " Dominion Swine Breeders' Association "	1,200.00
" " Canadian Horse Breeders' Association "	2,000.00
" " Beekeepers' Association "	1,100.00
" " Poultry Association "	1,400.00
	$8,700.00
Moreover, in order to encourage these breeders more efficiently, the Minister of Agriculture of that province has granted to the different societies the salary of an official, whose whole duty consists in keep the herd-books of all these different categories of breeders This officer receives $1,500 a year, with an office in the public buildings, warmed, lighted, and free from rates, etc.,—making the whole yearly money-grant	1,500.00
	$10,200.00

Had we received from our provincial government an analogous encouragement, it would be easy enough for us to prepare two herds, as Mr. Barnard suggested, to be sent: one to the province of Ontario, and the other to the New-England states, with a view to spreading abroad the reputation of our cattle.

Unfortunately, we have no such resources. Is not this state of things, I ask, absolutely detrimental to the progress, properly understood, of these undertakings? Do you not think, I ask again, that they, important as they are to agriculture, should receive some encouragement, under the form of a grant to these different classes of breeders, as the thing is done in Ontario? And I propose that the following motion be submitted to your decision:

SECOND MOTION OF DR J. A. COUTURE, V. S.

Encouragement of Breeders of thoroughbred Stock.

" Proposed by Dr COUTURE, seconded by M. GUAY:

Seeing that the breeding of thoroughbred stock is worth encouraging as much as possible, that it is one of the most effective means of improving the different breeds of animals, and of increasing the public wealth;

Seeing that the establishment of herd-books, etc., is indispensable to the breeding of thoroughbred cattle ;

Seeing that the Quebec breeders of thoroughbred animals have enrolled themselves in an association, in order to promote as much as possible this improvement of our animals, and to keep books of genealogy, but that their endeavors to this end are trammelled by want of funds ;

Seeing that the Ontario government grants to the different breeding associations of that province the following subsidies, to wit :

Dominion Cattle Breeders' Association	$1,500.00
" Sheep " "	1,500.00
" Swine " "	1,200.00
Canadian Horse " "	2,000.00
Beekeepers' Association	1,100.00
Poultry "	1,400.00

Besides paying a salary of $1,500.00 to a special officer, "*The Superintendent of Registration,*" who is authorized to keep the herd-books, etc., of every breed of animals in Ontario, except the Holsteins ; that it lodges, warms, and lights this officer, and therefore grants more than $10,000.00 annually to the breeders of that province ;

It is resolved that the *Dairymen's Association* unite with the *General Association of the Breeders of the Province of Quebec*, in requesting the provincial government to grant an annual subsidy to each section of the association of breeders, in order to enable them to assist in the improvement of the different breeds of animals in the province."

Mr. Ed. A. Barnard then reads his resolution relating to the :

GOOD ROADS ASSOCIATION.

Resolved, that seeing the importance of improving, in this province, the entire system of roads, in the general interests of dairying and all the other industries of the country ;

The Dairymen's Association expresses the wish that each of its members would give his active concurrence to the creation of the "Association for Good Roads," and that, in expectation of the definite constitution of that society, the members of the executive committee of the Dairymen's Association be appointed, until a new arrangement is made, provisional directors.

M. Castel read a letter from the President of the French Chamber of Commerce, (Board of Trade ?) of Montreal.

Montreal, Nov. 30th, 1896.

Monsieur E. CASTEL,

Secretary of the Dairymen's Association of St. Hyacinthe, at Joliette.

Mr. Secretary,

The French Chamber of Commerce of Montreal has received your kind invitation to be present at the annual meeting of the Association, to be held at Joliette, the

2nd and 3rd of December. Pray accept our thanks, and, at the same time, our regrets that we cannot assent to your kind appeal. The development of dairying in Canada, during the last few years, has been most remarkable, and constitutes a notable advance. It is also certain that this onward stride must supply an element of the export-trade that is about to play a grand part in Canadian commerce, and it is not impossible that the butter and cheese of this country may be able to establish, for themselves, a position in the French market.

Accept, Mr. Secretary, the assurance of our most distinguish consideration.

The President,

J. HERDT.

CONTINUATION OF THE DISCUSSION ON THE GIVING OF WHEY TO COWS.

M. Trudel.—The question of giving sterilized whey to cows has been discussed; but, practically, I think that it is very hard to arrive at a satisfactory result, and I propose that the feeding of cows on whey be condemned.

Mr. Barnard.—I agree with M. Trudel, and I propose the following motion: "Seeing that the whey at the factory is seldom preserved in a proper manner, and that consequently it is not safe to use it, and likely to injure the cheese, the Association condemns its use for milch-cows as long as its proper preservation shall not be assured by the best methods." (Carried unanimously).

M. J. de L. Taché.—I agree with what fell from M. Trudel as to whey being given to cows, and I would further remark that the whey should never be brought home in the milk-cans, since if the whey is not kept in good condition, it will leave in the cans germs that will injure the milk.

The resolution, passed last year at Waterloo, condemning the use of wooden whey-vats, should be again laid before this meeting; it is this:

"Considering the immense damage done to the quality of cheese by the use of wooden whey-vats;

"The Dairymen's Association earnestly advises the owners of cheeseries, in this province, to replace their wooden basins by tin ones for the preservation of the whey."

M. Castel.—I wish to ask a question from the experts who are present: at how much do you estimate the cost of making cheese in a factory that turns out 18,000 lbs. of cheese a year.

M. Bourbeau.—For some time, it used to cost me 44 cents a hundred pounds, reckoning in interest on capital and insurance. Now, it costs more. All depends on the amount of capital invested.

M. Parent.—With us, many makers are allowed half a cent a pound for supplies, such as boxes, salt, cloths, etc.

A Delegate—How shall we succeed in getting rid of the small factories that everywhere abound in the province.

M. Chapais.—I think Mr. Barnard's plan is the best : the organization of the cartage of milk. We have a factory of this kind at St. Denis, that returns good profits, and there competition is impossible, because we fetch the milk from the patrons' house and take back thither the whey. I advise good makers to combine and try to do away with bad installations and to cart the milk themselves. Wherever these arrangements exist, there the small factories have been expunged.

M. Chagnon.—But if farmers will not let us cart their milk ; how then ? Such a case has already occurred to my knowledge.

M. Chapais.—What do you charge per 100 lbs ?

M. Chagnon—Three and a-half cents. I calculated how much it would cost if done by a carter ; I paid half the cost out of my own pocket, and asked the patrons to pay the rest.

M. Chapais.—We charge two cents a pound for making cheese, and cart the milk ourselves.

M. Parent.—With us, we cart the milk, but still there is competition.

Mr. Barnard.—The same result occurred with us, but all those makers were soon reduced to beggary ; then, the farmers began to see that such men, who had no means, some how or other found means to live, and they soon came to the conclusion that it was at their cost : then, they combined, built a good factory, and the small ones soon tumbled to pieces. Whence, you may conclude that, if you try to get rid of this evil, you will succeed, and the best way to succeed is to undertake the cartage of milk to the factory. When there is a good centrally situated factory that carts the milk and pays the patrons well, the people having nothing to do but to take their money, the small makers soon find it out, and leave as soon as they can manage it.

A Delegate.—What is the cost of carting milk ?

M. Chapais.—It costs us 3.57 cents a hundred to draw the milk to the factory and return the whey. For the transport of 1,594,085 lbs of milk, we paid $561.00.

M. Wm. Tremblay.—Do you not think that no one should be allowed to make butter or cheese that has not a diploma ?

M. Chapais.—The question has been long under discussion, and I intend to submit it to the meeting.

Mr. Barnard.—The federal law does not yet permit us to do that which is sought for, but, practically, we can arrive at the desired result. As without a good maker there cannot be a good factory, we ought not engage any man who has not proved his capacity, and, thus, we shall reach the same results without having had to seek for a law, which would be difficult to get passed.

M. Wm. Tremblay.—I beg to observe that no one can exercise a liberal profession without a diploma, and I do not see why it should not be the same with butter- and cheese-makers.

M. l'Abbé Côté.—Could not an Inspector-General of the Dairymen's Association be appointed Justice of the Peace to decide all causes connected with the dairy-

industry ? By this, we should escape having to submit our suits to the jurisdiction of men who know nothing about that business, and should avoid many a process.

A Delegate.—What is the farthest distance from your factory, M. Chapais, from which you draw milk ?

M. Chapais.—Seven miles.

A Delegate.—There is a factory, in Ontario, that brings milk from a distance of six miles, and that costs the owners 33 cents a thousand pounds.

A motion relating to a bill concerning diplomas, proposed by M. Wm. Tremblay and seconded by M. Wm. Parent, was : Carried unanimously.

The Motion.

"That the executive Committee of the Dairymen's Association be desired to submit, at the next convention, the draught of a bill providing that every maker of butter or cheese be in possession of a diploma of capacity." (Carried unanimously).

Mr. Ed. A. Barnard.—I beg to call attention once more to my proposal last year, at Waterloo, (8th resolution, 14th Report, 1895). In discharge of his duty, our Secretary published in the papers a note which remained a dead letter. In order to obtain a tangible result, the prayer must be repeated, but, this time, in a direct manner. Every body agrees in recognizing the fact that dairying has been the cork-jacket owing to which the province of Quebec has been enabled to cross securely the crisis which has made itself felt in other parts so severely. Read the speeches from the throne ; those of the Ministers and leading politicians, the reports of our financiers, and of others, and if you still have any doubts, after reading these you will no longer have any. Now, we shall be allowed to claim for the Dairymen's Association a good share in these fortunate results ; doubtless it had not been in a position to act efficiently were it not for the liberal grants successive ministries have made to it. But money alone could never have ensured the development of the trade, nor especially the improvement of our products, without the zeal, the energy of the members of the association, and the incessant labor they have displayed for the last fifteen years. To-day, the society stands in need, more than ever, not only of the assistance of the government. but still more of the general public. Dairying, as well as other trades, is menaced with a crisis ; already, discouragement has glided into certain districts of the province ; and, at every cost, we must protect, Gentlemen, our position so gallantly won. There are peoples, ardent and brave, who find it more difficult to defend a position without stirring a foot, than to carry a fortress by assault. Such is partly our case, contain this difficult situation, the Association feels more than ever the need of reckoning in its hosts a great number of leading spirits, who informed by the association of the dangers of the crisis, will at every opportunity speak a useful word of encouragement, give satisfactory explanation when requisite, and recommend the exercise of more care, perseverance, and economy. Wherefore, persuaded, as I am, that the

Dairymen's Association may without fear appeal to all well inclined people, without distinction of origin or party, I beg to propose the following resolution.

MOTION IN FAVOR OF THE ASSOCIATION, BY MR. ED. A. BARNARD.

" Proposed by Mr. Ed. A. Barnard.

Seeing that the Dairymen's Association has always been, from its origin 15 years ago, among the most active pioneers of every step in agricultural progress,

And considering the importance of uniting, as in a sheaf, all the best friends of agriculture and colonization, by means of the dairy-industry and its adjuncts.

That the Secretary of the Dairymen's Association be desired to write to all the members of the clergy specially, and to all public men, without distinction of political parties, in this province, and solicit each one individually to join the Dairymen's Association, either as a life member, or as an ordinary active member.

Mr. J. D. Guay.—I second Mr. Barnard's motion.

The motion was carried unanimously.

Mr. E. Castel read

REPORT OF DR. WYATT JOHNSTON,

Bacteriologist of the Laboratory of the Provincial Council of Health.

Montreal, November 20th, 1896.

MR. E. CASTEL,

St. Hyacinthe, Que.

SIR,

I have made a bacteriologic analysis of the four samples of cheese sent to me by M. Bourbeau, the origin of which I knew nothing of until after they were analyzed. The samples were numbered 1, 2, 3, 4.

Sample No. 1 had a fetid, repulsive smell, when I examined it in the laboratory; the other three, when under examination, did not appear to differ sensibly from one another in point of smell; but my sense of smell is not powerful, and it is probable that an expert would have delected a difference where I could find none.

All these samples gave an acid reaction. This was weakest in No. 1, and strongest in No. 3. In the four samples, cultures were pretty uniform as to the numbers of bacteria, though, to be accurate, there were a few more in Nos. 1 and 3 than in the other two.

These bacteria were chiefly bacilli of the lactic acid fermentation. There were, relatively, very of other kinds, except here and there isolated micrococci and spots of mould. I found only a few of those liquifiable anœrobic forms that characterize the last period of ripening, with the exception, however, of sample No. 1, wherein I found a few bacteria belonging to the group of bacilli called " Proteus " organisms that are known to be able to cause diarrhœa.

It is clear from what precedes that, in the sample No. 1, a putrefaction has been set up that is not natural in cheeses of the kind that were sent me. There did not appear to be in the sample No. 3 any other living bacteria than those that are found in the samples No. 2 and No. 4.

I was told that the cheese from which the sample No. 1 (N. F. B.) was taken was selected from the worst lot; that the cheese from which sample No. 3 (K. 26) was the very one which it was desired to test, and that cheeses No. 2 (P. A.) and No. 4 were only cheeses of good quality sent for comparison with the others.

The bad flavor that was complained of in sample No. 3 (K. 26) does not arise from its containing, alive, bacteria other than those of the normal fermentation, and it is not probable that it will undergo any further change. The fact. that, as I was told, this cheese emitted a stronger smell from its first make, than at present confirm this opinion.

Besides, this opinion agrees perfectly with the idea, expressed by M. Bourbeau, that the smell is due to the vapor proceeding from the foul water used in the first stages of the manufacture of this cheese. This would be explained by the fact that at this moment, in spite of heat killing live bacteria, it renders more powerful the bad smell the water might have had.

The bacteriologic investigation of the two samples of water sent by Mr. Bourbeau show that this water was bad. It contained, in each sample, from 8 to 10 species of bacteria, and 800 to 1,000 bacteria to the cubic centimetre. Among the bacteria that were developed in this water, I found the lactic acid bacillus; but, as this species is often met with in surface water, I do not attach much importance to its presence.

I remain your obedient servant,

(Signed) WYATT JOHNSTON, M.D.

Bacteriologist to the Board of Health of the Province of Quebec.

(SESSION OF WEDNESDAY EVENING, DECEMBER 2nd).

Report of the Committee of election presented by MR. J. DE L. TACHÉ, secretary.

The following names were proposed and accepted:

Honorary President: L'ABBÉ MONTMINY.
President: MR MILTON MCDONALD, M. P. P.
Vice-President: MR. J. C. CHAPAIS.
Secretary-Treasurer: MR. EMILE CASTEL, St. Hyacinthe.

DIRECTORS :

DISTRICT.	NAMES.	RESIDENCE.
Arthabaska	MM. D. O. BOURBEAU.....	Victoriaville.
Beauce	J. DE L. TACHÉ.....	Scott Junction.
Beauharnois	ROBERT NESS.....	Howick.
Bedford	C. H. PARMELEE.....	Waterloo.
Charlevoix et Saguenay. ...	J. D. GUAY.....	Chicoutimi.
Chicoutimi	Jos. GIRARD, M. P. P.....	St-Gédéon, Lac St-Jean.
Gaspé	ALEXIS CHICOINE.....	St-Marc.
Iberville	L'ABBÉ V. CHAREST.....	Sherbrooke.
Joliette.	SAM. CHAGNON.....	St-Paul l'Ermite.
Kamouraska.	FRS. GAGNON.....	St-Denis en bas.
Montmagny..	GABRIEL DUMONT.....	Ste-Hénédine.
Montreal.	J. A. VAILLANCOURT.....	St-Marc.
Ottawa.	N. F. BÉDARD.....	Montreal.
Quebec.	ED. A. BARNARD.....	L'Ange-Gardien, Mtcy.
Richelieu.	J. L. LEMIRE.....	La Baie du Febvre.
Rimouski.....	CHARLES PRÉFONTAINE..	Isle-Verte.
St-François.....	J. A. CAMIRAND.....	Sherbrooke.
St-Hyacinthe.	L. T. BRODEUR.....	Acton Vale.
Terrebonne.....	L'ABBÉ COUSINEAU.....	Ste-Thérèse.
Trois-Rivières.	L'ABBÉ D. GÉRIN.....	St-Justin.

Mr. Macdonald, the president elect, in taking the chair, observed that he accepted with great pleasure the honorable position offered to him. He would have hesitated to accept it, were it not that, as councillors, men of such experience had been annexed to his office. They might be sure that he would do his best to follow the footsteps of those devoted men who had preceded him in the position he now occupied. (Applause).

ADDRESS OF THE REV. ABBÉ MONTMINY,

The outgoing president, detained at home by illness.—(Read by M. J. C. Chapais).

Gentlemen,

The stranger who, before reaching the place, knows nothing about the town in which we are now assembled, must think that its pleasant, prosperous, smiling look must have something to do with its name : "Joliette."

But for us, who know better, this name has an entirely different signification. It indeed represents in our ideas one of the prettiest towns in our territory, but it is still more significant to us : it indicates what may be called the capital of one of the richest rural district in the province, and more especially is it to us the name of a

bronze medals and money prizes to the fortunate competitors. In looking over the report of Mr. Gabriel Henry, the secretary of these competitions, we find that every care has been taken to make them efficient, such as the appointment of experienced judges, the impartial selection of samples for competition, and the chemical analysis of those samples. The study of this report must be of the greatest utility to our makers, especially to our inspectors of syndicates, who will find in it a specification of those weak points that have to be contended with during their work of inspection.

For his part, the Dominion Dairy-Commissioner, knowing that many of our creameries are not what they ought to be, enjoined, at the request of our association, M. Damien Leclair, the skilful teacher of butter-making, at the Dairy-School, to make an inspection of our creameries last summer. M. Leclair will tell us, during this convention, how necessary this inspection was, and I trust the butter-makers will lay to heart the wise advice he gave them during his visits, as well as the judicious thoughts he emitted touching the reforms needed in the care of our creameries and our mode of making first-rate butter for exportation, all of which he will narrate to us here.

Since I am talking about what has been done by the federal and provincial Departments of Agriculture for the improvement of our butter and cheese, I will also draw your attention to the advice given, in the last number of the Journal of Agriculture, by M. J. C. Chapais, our assistant-commissioner of dairying whose services to our association every one knows; as to the making of export butter in winter; advice that shows how possible it is here to make winter-butter for the export-trade, if we will put these counsels in practice.

I will now advert to those two principal operations that our association is most anxious about: the factory-syndicates and the dairy-school. Two years ago, our association, replying to the wish of a great number of its members from every corner of the province, organized the *dairy-comitia*, that is, small or district conventions. People complained, and with reason, that the great annual convention of the society did not always bring together; owing to the great distance some of its members had to travel to reach it; more than a relatively limited number of its members, and had not, therefore, a useful effect on all parts of the province. We attempted to obviate this inconvenience by means of these *comitia* and succeeded, as the result obtained by the plan fully proves. The object of these smaller meetings was to increase the number of the syndicates and to establish them all over the province, to increase the membership of the association, by interesting the greatest possible number of farmers in its work, and to disseminate, by the decentralization of the active movements of the association, agricultural information, especially as to dairying, throughout the whole province. As the result of nineteen *comitia* held during the winter of 1895, the number of syndicates rose that year from 28 to 38, and the membership of the association from 1057 to 1451.

At the Waterloo meeting, last year, the following resolution passed during one

of the sessions of the convention unanimously showed how greatly the public appreciate the comitia. " Seeing that the Dairymen's Association rendered last year, and may go on rendering, year by year, great service to the agricultural public in general, by carefully organizing district meetings, in which expert lecturers, local as well as from other places, will promote the most pressing interests of farmers, and explain the means most likely to aid their prosperity.

" The Association trusts that these district comitia will in future be organized in a regular manner by the directors of the association, and that they be desired to secure the kind concurrence of the government of this province, of the clergy, and, in general, of all friends of agriculture, with a view to the complete success of these comitia." This, and the success obtained, induced us, last winter, to continue the comitia. Unfortunately, it was impossible for the association, funds failing it, to accept all the invitations it received, and it could only hold seven comitia instead of nineteen. Now, what have we seen, this year ? The number of syndicates has fallen to 28 and the membership of the association to 874 ! Whatever may be thought of these comitia, it is clear that they have become a necessity considering the apathy shown by a certain part of our farmers towards their dearest interests. I trust then that, next winter, our body will be in a position to recommence the work whence such good effects have sprung.

Never have the existing syndicates received more particular attention from the inspectors than this year. Although the association was unfortunate enough to lose its Inspector-General, Mr. Peter Macfarlane, whose thorough knowledge of the art of butter- and cheese-making was so useful to us, I must say that it has been fortunate enough to repair this lost by engaging the services of M. Elie Bourbeau. M. Bourbeau, with his assistant, M. J. A. Plamondon, an old hand, visited, last spring, before our season of making opened, the most advanced dairy districts of Ontario They took this trip, under the orders of the association, for the purpose of gathering all the information they could in making dairy products, as practised by the best makers in Ontario, and they brought back information that enabled them to render more efficient than ever their inspection of the syndicates this year. M. Bourbeau has not only paid attention to the work of our local inspectors of syndicates, but he has also attended to the work of those makers who intend to present themselves as candidates for inspectorships next year. This he did in accordance with a decision of our Board of Directors, which now exacts from the candidates for inspectorships that they make their application for that position a year in advance, in order that the association may, through its Inspector-General, assure itself, during the making season, of their competence as makers, before admitting them to following the courses of the dairy-school, there to pass their examination in the theory of the art.

Since I have just mentioned the dairy-school, I will at once relate to you the changes that have been made in it this year.

Professor Robertson, Dominion Dairy-Commissioner, who, since our school was

definitely established at St. Hyacinthe, has had the general direction of it, considering that it is now so fairly settled as to have no further need of his services, and being over-burdened with work elsewhere, has surrendered his post. We therefore have had to provide a new plan of direction, and our executive committee thought it could not do better than confide the management to the members of the board of management, coadjutors of Prof. Robertson, last year. From managers as they were, MM. Milton Macdonald, J. C. Chapais, and J. de L. Taché have thus become Directors of the school, representing, each one respectively, in the direction : the local government, the Dominion government, and the association.

With these new guides, we do not expect to have too much reason to lament Prof. Robertson's resignation ; still, it was highly important to the society, since for the $1,000 we paid our Director, he furnished our school, from the funds of his department, with $4,000, and we enjoyed, in addition, the gratuitous services of his assistant, M. Chapais, to give lectures to the pupils. Fortunately, the Hon. S. A. Fisher, who seems to have preserved very pleasant recollections of his relations with the association, has continued to us the gratuitous services of M. Chapais, and has granted us the liberal sum of $3,000.00 with which to encountor our new position. This, with the sum no less liberally granted by the Hon. Louis Beaubien, places us in a position to keep up our school ; which, it must not be forgotten, affords education free ; on as good a footing as last year. The attendance of pupils last winter, fell off a little. From 312, the number in 1895, it fell to 276. There are, two reasons for this decrease : the first, is that the low prices of last season discouraged some of the makers in the small factories, who, otherwise, would have attended the school ; the second, is that many young men, who wish to come, were prevented by want of means to pay for their board, by the hard time. We have reason to hope that this cause will soon cease, as the price of dairy-goods has materially increased.

It would be a sad omission, in this review, not to mention the efficient aid that the Association has received from the Society of Dealers in Butter and Cheese, of Montreal, in its efforts to diminish the production of inferior butter and cheese. Last spring, that association sent out a circular asking cheese-makers not to make any " Fodder-Cheese." This fall, we saw them putting the makers on their guard against the same thing. And still later, they raised their voices to help us to get rid of certain troubles we met with last season, owing to the use of bad rennet, of paraffined paper of inferior quality, and the employment of green wood in butter-boxes. The association in question truly merits praise for its zeal in showing us the dangers that threaten us, and we are bound to show them that we are grateful.

That, which I have just said about the services rendered to us, last season, by the Butter and Cheese Society, shows the vast advantages that flow from a spirit of association. The proverb that says : " Union is strength," is always true, and must always be put into application when the object is to do good. It is for that reason that I, speaking for the last time, as your president insist on the necessity

Vice-Presidents of the Dairymen's Association:

The Rev. D. GÉRIN,
3rd Vice-President, 1886, '87.

The Rev. J. B. CHARTIER,
5th Vice-President, 1889.

ED. A. BARNARD,
1st Vice-President, 1882, '84.

The Hon. LOUIS BEAUBIEN,
Commissioner of Agriculture of the Province of Quebec,
2nd Vice-President, 1885.

The Hon. SYDNEY A. FISHER,
Minister of Agriculture of the Dominion,
7th Vice-President, 1891, '96.

that exists, for us who are interested in dairying, to unite more and more in as great a body as possible to promote the interests of our industry. Last year, there were 1,774 factories in the province ; in each factory, there is a maker, and at least one assistant, who generally is an apprentice. Well ! There are 3,548 persons who are directly interested in belonging to our association. Moreover, in the 1,774 factories, at least one-third of the proprietors are not the makers who manage the concern ; that is, there are 591 persons who, if they knew their own interests, would belong to our body. Add, again to these, a subscription from each Farmers' Club, in the province, to enable the Club to have the reports of our association in its library ; reports that are full of information interesting and useful to all farmers ; and you have another 500 members of the association.

Still more ; in the trades that supply the furnishings of the factories, among the commercial travellers that buy the dairy-products in the country, among the wholesale dealers in those goods, among the agricultural missioners, the lecturers, and many others who, under various titles, have an interest in gaining information on the subject of dairying, you may easily find 400 more persons who ought to belong to our body : all these sums united would give us a grand total of 5,089 members. What a power for good would our association possess, and what great thing could it do, had it such a membership ! And yet, gentlemen, this dream of the moment might easily " come true " in a near future, if all those who are, in any way, connected with dairying, thoroughly appreciated all the resources that the spirit of association offers them.

And then, when once they had entered our body, all would understand the importance of supporting the views of the directors. The factory syndicates would soon stretchout their net over the whole province, and a non-syndicated factory would be, by the simple fact of its existence, contemned and compelled to enrol itself in a syndicate or to vanish. We should not see, that which we had to deplore this year, the number of syndicates falling off, just at the time when a sister-association, in Ontario, thought fit to establish a syndicate among her people, struck, we may suppose, though not avowedly, with the efficiency of these institutions in this province. Not a single apprentice ought to dream of becoming a master-workman, without having passed through our dairy-school.

To work then, dear friends ; enrol yourselves in the membership of our association, all you who desire to obtain the greatest possible advantages from our well managed, well carried out system of dairying. Organize yourselves everywhere into syndicates. Insist that every one of your makers shall have the experience gained by a regular course followed at the dairy-school, before you engage him. If we get to this point, we shall find ourselves in the golden age of dairying.

I fear I have already been too long, but, before concluding, I have one more point to touch upon. The exceptionally bad weather of the past fall will easily make you feel why I wish to speak about our roads. To say that they were frightful all the autumn, does not sufficiently express my thoughts. And yet, there

are places, rare indeed, too rare, alas! where the wet fall has not ruined the roads. It is in those places that the *road-machine* was used last summer. It is a good opportunity; now that the carters of milk have still fresh in their memory all the misery that they endured, in autumn, on account of the bad roads; to strive to recruit members for the Good Roads Association. How sad is the apathy manifested by our farmers towards the state of the roads! Must we confess, to convince a large part of even our most intelligent farmers, that bad roads are, in many places, one of the worst causes of our slight progress in agriculture? I trust we shall not have to suffer the shame that such an avowal brings with it. Rouse we then from our stupor, beloved friends; let us join together to improve our roads, as we have improved our dairy-practice, our Farmers' Clubs. Let us emerge from the rut; the word is full of actual significance; in which, painfully jolting about, rolls the car of our agriculture, on which, however, are borne the fortunes of our country, fortunes that, like everything that reaches us over bad roads, will reach us much after they are due, unless we smoothe the road along which they travels.

Despair not; on the contrary, be bold; for my part, after that which I have seen, I am sure that, before long, we shall succeed, more from conviction than by legal compulsion, in having roads that are, in reality, "The Queen's Highway."

Last summer, Monsieur Beaubien, by a fortunate inspiration, offered to lend the road-machines to any municipalities that asked for them. The results were truly marvellous; our farmers, who saw them at work, frankly confessed that, with them, it was possible, even easy, to keep roads in first rate order. Several municipalities have determined to buy one. We must congratulate the Commissioner of Agriculture at having inaugurated a Department of Roads, and, should any one dare to deny the utility of such innovations, we would condemn him to sojourn in the country, during the autumn, under bonds to take, three times a week, a romantic stroll of ten miles by moon-light.

I will not, however, conclude my address by leaving you in the rut; in other ways, you are in a good road, especially as regards dairying. I return to you, hoping, with all my heart, that this new halting-place you are about to gain, during this present convention, may lead you to the goal you are seeking to gain and which I pray Providence you may attain—SUCCESS.

READING OF THE ADDRESS OF THE TOWN OF JOLIETTE

TO THE DAIRYMEN'S ASSOCIATION.

To the President and the Directors of the Dairymen's Association of the province of Quebec.

Sir,

The town of Joliette is in high spirits to-day, and it is with all my heart that, in its name, I bid your Association most heartily welcome.

For us, it is indeed an honor to receive the visit of the membres of your Association, and of the distinguished men who closely follow the progress it is making.

When we find that all these great personages are here, not only for the purpose of visiting our little town, but also to instruct us in the management of a domestic industry, we may well ask how comes it that so much interest is taken in our affairs.

The whole secret lies in this : we are, like you, Canadians, and it is your desire that, great and small, all shall march together, hand in hand, along the road of progress extolled by your Association ; for this will ensure to Canada a distinguished rank among the nations.

By selecting Joliette as the place of your meeting, in 1896, you felt that it was the centre of a great productive district.

We hope that your efforts to propagate and develop dairying, in this part of the county, will receive, on the part of our farmers, all the attention that they merit and that you have a right to expect. Far from having sown on an ungrateful soil, you will find here, we feel sure, as many skilled farmers as you can wish for.

Our little town will do, in that line, all that shall be assigned to it to perform to aid in the development of this national and patriotic work.

Be welcome then, all of you, to our home.

We are sorry that we cannot offer you a more fitting hall for your convention than this.

Such as it is, we pray you to make yourselves at ease in it.

Make yourselves at home, and do just as you like; command, and we will obey. The Mayor lays aside his power to entrust it to your hands ; it is the best service he can render to his constituents to place their interests under the protection of the chief of those generous men, who devote themselves to promote the progress and advancement of our youthful and splendid country—CANADA.

Joliette, December 2nd, 1896.

READING OF THE ADDRESS OF THE AGRICULTURAL SOCIETIES.

TO THE DAIRYMEN'S ASSOCIATION.

To the President and Members of the Dairymen's Association of the province of Quebec.

Gentlemen,

I am especially happy in joining the Mayor of this town in wishing you, in the name of the numerous agricultural societies represented at your important convention, the most sincere and sympathetic welcome at the commencement of your most interesting labors.

We are all deeply impressed with the honour you have done us and with the del

cate attention you have manifested, in inviting us to listen to your scientific, your patriotic debates. And we, the members of different agricultural societies, have hastened hither from all parts of the country, and cannot but esteem ourselves fortunate to be revivified and, so to speak, tempered anew (retrempés,) in the love of agriculture so dear to us, when we see the example set us by such distinguished models, and accompanied by so much dignified lucidity.

Your convention meeting here is very complimentary to us, and the more so since it is composed of eminent members of an association that has already done so much good, not alone to the farmers, but to the country at large.

I will not pretend to sing the praises of your association; that would be to write one of the most useful, one of the glowing of the pages of the history of our province for the last fifteen years; the history of the greatest and most durable progress that has been accomplished in our agriculture, the progress of dairying.

In this work, all well disposed minds, all true friends of our country have taken a large share; in your operations, so truly Canadian, members of the clergy as well as statesmen have borne their part; men of the liberal professions, of finance, of trade, as well as distinguished agronomes and enterprising farmers; yes, all, without distinction of race, origin, or religion, have repressed their political tastes and preferences, to embrace the cause of the common friend of all ranks, of the great purveyor of the people's food, of the immense class of farmers, to which we, with legitimate pride, boast that we belong.

Your presence among us is a powerful encouragement; your exertions will be to us an important assistance, and, though it is thanking you in advance, we beg to assure you, Gentlemen, that our minds are quite made up to profit by your useful instruction, to follow your wise advice, and to strive to follow your patriotic example.

Welcome! then, among us, Mr. President, and you his earnest fellow laborers; welcome! to this hall and to our town, where, we are sure your visit will be productive of great benefits to all.

J. B. A. RICHARD,

President of the Agricultural Society No 1 *of the County of Joliette.*

REPLY TO THE ADDRESSES, BY THE PRESIDENT, MR. MACDONALD.

Mr. Mayor, Ladies and Gentlemen,

In my own name, as well as in the name of my colleagues, I accept the welcome that, in the name of the town of Joliette and of the agricultural societies, you have been good enough to bid us. We knew very well what a kind reception awaited us when we accepted, at the instance of your member, your invitation to hold our convention this year at Joliette. I can honestly say that never have we been received

into a better arranged hall, so well filled, and so embellished moreover by those charming nosegays represented here this evening by the ladies of your town. The Joliette convention will form an epoch in the annals of the Dairymen's Association of the province of Quebec. Joliette may congratulate itself on one thing: this is the first time that one of our conventions has had the honor to see present, on the same occasion, the Hon. the Minister of Agriculture of Canada, and the Hon. the Commissioner of Agriculture for the province of Quebec.

You mentioned, just now, the labors of our Association; do not for a moment doubt that your words of welcome will be a powerful encouragement to us; be sure that all our efforts will tend to secure the prosperity of agriculture, and particularly of dairying, throughout our whole province.

Now, I give place to the Hon. Louis Beaubien, who will, I hope, favor us with a few words.

ADDRESS OF THE HON. LS. BEAUBIEN.

Mr. President, Ladies and Gentlemen,

I am fortunate, indeed, at being able to say: Ladies, for until the ladies began to attend these lectures there was but little hope for agriculture.

It is indeed a pleasure for me to be present at this meeting, and I confess that, if I have ever entertained a hope of being able to effect something for the benefit of agriculture, it is when I see, as my supports, the compact and valiant battalions of the Dairymen's Association of the Province of Quebec. (Cheers.)

I congratulate you, Monsieur Macdonald, at having been selected to lead those troops. When I have needed strong and brave warriors at my back, when I needed support, it was to you, as you well know, that I turned in those moments of peril. I was accustomed to look upon you as the representative of agriculture in parliament, and when I turned my eyes upon you, you never failed me. You have invariably been ready and anxious to defend the interests of the farmer.

There, Gentlemen, is the President you deserve to have at your head, and I feel sure that, under his leading, you will advance, as in the past, along the road of progress; for, progress is what we need; our agricultural instruction must be developed by every possible means; success is what we farmers aim at, is what we must ensure. And for that we need perseverance, work, what the English call: INDUSTRY, i. e. the spirit of initiative that, not satisfied with inspecting and then imitating the successful work of his neighbor, starts in front, and, of his own motion, breaks out the road in his turn. (Cheers.)

At these meetings, particularly during the last three years, I have remarked, with pleasure, the presence of the representatives of the clergy. Oh! The kindness and aid we have met with in their ranks! Gentlemen, the clergy are every at the front; when the formation of the country was in question, when *men* were what was needed, the clergy put themselves at the head of the movement. We have seen them educate the men who have always defended our rights, build the schools,

the colleges, the universities, and if, to-day, we can say with truth that we occupy an enviable rank in high scholarship and intellectual progress, it is to the clergy that all these things are due. They have always worked for the success of the country, for success, as regards the people, is concurrent progress, both intellectual and material, it is progress in agriculture.

Here have come, to labor in the noble cause of agriculture, the representatives of the clergy; they take the son of the farmer by the hand to lead him onwards towards the resurrection of agriculture, as they once led ourselves, we who can deal with a few sentences, and who, in consequence, are regarded, falsely perhaps, as being in some degree educated men.

It is to Père Lacasse that is entrusted the special discharge of this duty: to enrol the sons of the farmer in the ranks of the schools of agriculture.

We have learned Bishops; we have men of letters; orators of the first rank; now, we need farmers of the highest class (Cheers), and then prosperity will reign everywhere; it will spread itself abroad over our country parts, as the beneficent fire spread itself over the prairie.

I hope, with the aid of these worthy priests, we shall succeed in inducing our people to feel the need of agricultural improvement, and in sending them forth upon a yet untrodden road. I am rejoiced, indeed, to see these pious workmen—if they will allow the use of that term—who have forged our intellectual progress, and whom you now see putting their hands to the plough. For, after all, we are here as farmers, and I am glad to see them present here, encouraging us with their counsels in this road as they once guided us in the other.

Progress in farming we as much need, as we needed it in other branches. Our farmers have to learn how to succeed on their land, as our advocates, our preachers, one notaries, our politicians have succeeded, each in his own sphere. This is what we want, and we shall have it, if the Dairymen's Association continues to prosper as it has prospered in the past. (Cheers).

I see here a man who must have rather violated the rules of his order in coming hither this evening; Dom Antoine, I mean, Abbot of la Trappe at Oka. I trust he will be asked to speak; since it seems that the greatest privation imposed upon the disciples of this order, by the founder, was to close their lips; and the better to ensure silence, he enjoined them to work. Worked, they have, in the province of Quebec, as in France, and everywhere else where they have a monastery. It is these illustrious workmen who, under the French government, have in Algeria the finest farm in the whole world; they grow vines there by the hundred of acres.

These good Fathers, now established here in Canada, will travel onwards with us to the conquest of agricultural progress. And now that the country is everywhere covered with institutions that supply men fitted to direct our efforts, every parish must need prosper, every farmer must be king over his own domain, without being indebted to any one whatsoever: and that, because he is industrious. (Cheers).

I have brought very little luggage with me. Leaving Quebec at one o'clock this afternoon, I reach this place at eight o'clock, and I am at once asked to address you! Can any one marvel, then, if my remarks lack cohesion? But one part of my luggage, a part that I always carry to these meetings with pleasure is: good will. Counting on those who know more than I know, I try to remember their counsels. This is what you, too, you farmers must do. If you wish to improve your position, begin by saying to yourselves: I know nothing. You know the parable of the publican who remained in the background, at the door of the Temple, beating upon his breast in humble penitence; it was he that went out justified. If you can say that you know nothing, you already know a good deal; but man has never done learning, as he has never done working; he must still earn his bread by the sweat of his brow. (Cheers). The Creator himself has not exempted himself from the law of labor. Let us then work for our instruction, for our families, for the country. Work is a punishment, and he who cannot submit to *merited* punishment will be wretched all his life long.

I know rich people, who have nothing to do, except *s'ennuyer*. (1) They are not fortunate enough to enjoy the happiness of having a daily task to do.

There are various ways of gaining instruction. Some are satisfied with watching those who do their work better than they themselves. Others leave their work to attend meetings like this. I am pleased to give this testimony: people are trying to learn; there are Farmers' Clubs almost everywhere, and the *Journal d'Agriculture* now reckons up its fifty-three thousand subscribers.

People there must be inclined to gather information.

I remarked to myself, and told my lecturers: if we lay before the rural population ideas that they can not immediately grasp, that will not be beginning at the beginning. But we must go in company with the experience of farmers who have been successful in this country, and begin by advising them to practise a few things at a time. Some there will be who will say to you: "You do not know enough to teach; you go through the country, repeating always the same things." True, we always repeat the same thing, and we shall still keep on repeating them for years, until the country becomes prosperous, until a good beginning has everywhere been made.

How many are there who know the commandments of the Almighty and of the Church, and yet are obliged to go to confession, because they do not obey them. They know them perfectly, but they do not practise that they know. So, we must spread abroad our instruction, repeat our lessons over and over again, in order to impress them deeply in the mind of our farmers.

I do not mean to give you here an agricultural course of instruction; you have men here who could do that better than I. I can impart to you all my knowledge, all my experience, in one simple phrase: "You, who follow dairying, ought to be

(1) Untranslatable to weary oneself.—A. R. J. F.

graziers rather than *farmers* You must attend above all to your pastures, for nowadays they will pay better than any other part of the farm. How many of you, in this country, take the trouble to seed-down your pastures ? And, even if it is done, the seeding is done with some plant that does not last, like red-clover. Our pastures are not good enough ; if we wished, we could have permanent pastures, such as there are in other countries ; we might have excellent pastures, and we need them. Stones and weeds must be cleared off the pastures, and either ashes, dung, or artificial manures must be spread on them. In most cases, the grass is allowed to grow, or not, as it likes ; weeds take possession of the land, they are allowed to grow, and that is a pasture !!! Nevertheless, the pastures are the principal fields on a farm : the returns from them are the greatest and the outgoings the least.

But, when the pastures are no longer good, if the sun scorches them. if the droughts wither them, then come in the fodder-crops to replace the grass your cattle no longer find there You *must* have green fodder for your cows as soon as they begin to shrink in their milk ; for you know, by experience, how hard it is to bring back cows to their previous state, when once their yield has begun to fall off.

And green-fodder is needed as much in winter as in summer, whether you use the chaff-cutter or not. Now, roots should be in use ; you must sow roots.

We cannot conceal from ourselves that winter dairying has been greatly developed here. Mr. D. M. Macpherson has, in his own hands, and at work this winter, no less than twelve creameries ; and I believe we have in this province from fifteen to twenty that will work throughout the winter.

And here I must pause a while to congratulate this flourishing town on not having abandoned the campaign, but on keeping up both cheeseries and creameries in their town. There is a proprietor here of a cheesery, that he is about to transform into a creamery.

I made up my mind to speak to you about one or two matters to which I would draw your attention ; one is the fact that there are too many factories in the same parish. There are some parishes in which there are a dozen cheeseries, through two or three would do the work. These small factories cannot possibly get enough milk sent to them to enable them to turn out good products.

Another obstacle is bad roads. I am at work over this question, and I think I shall be able to devise a plan by which the province will be supplied with good roads. I have had a good deal of trouble to get my idea adopted ; I was told : you are going to spend great sums of money. I replied : Let us start with a small outlay. It took me three years to get it. At last, I succeeded, and I said to the House : There, that is the amount I ask for. Can you fancy the reproach that was cast in my teeth ? It was this : You ask for four thousand dollars ; it is not enough ; you must have two hundred thousand. Such was my success !

I saw, I will not say in what parish, but I saw some of the finest possible land there that can be imagined, the soil was the acme of fertility. Good land,

bad roads; good roads, bad land. It is thus that the Almighty has arranged things (laughter); it is in such spots that a few drops of sweat must still fall, to expiate the sin of Adam and his spouse.

To repair their fault, let us repair the roads. I saw there the most atrocious roads, in August too. I told the wealthy farmers of the place (there are no poor there), I told them: You are so rich; tell me why your roads are in such a state? They answered: Impossible to convince the municipality; the people prefer this wretched state of things to troubling themselves about such trifles as roads.

It is this that plays the very mischief with the dairy-trade.

I shall ask the representatives of the municipalities to apply to me. The government places, at the service of the public, machines to mend these roads, and, with them, a mile of road can easily be repaired each day. This, that I am telling you, is no novelty in the Eastern Townships. But haste must be made to imitate the good example we see elsewhere. With these machines, the roads are slightly rounded, and ditches are made. This is already a great step in advance; but, if you want still better roads, the government will lend you machines called "stone-crushers." Each municipality can have one of these for a month at least; and this system is extending, because the need of it is pressing, and a good disposition to make use of it is already manifest.

Good roads, then, that is the way to get rid of too many factories. The better the roads of a parish, the fewer will be those small factories that are the ruin of the trade. I trust that advantage will be taken of these offers, as has been the case in Ontario on a larger scale.

The municipalities will be served each in its turn: first come, first served. Already a good many names are inscribed.

Another question, about which I should like to talk to you is the combining of the Farmer's Clubs with the County Agricultural Societies. The Society regards the wants of the public in general. Now, in this amalgamation of the Clubs with the Societies, there is a little dodge (*truc*); a trick played upon me by my friend, M. Pariseau; for, by this amalgamation, he made me pay each county $200.00 a year extra! I allowed him to get this sum out of me with equanimity. So the County of Chambly gets two hundred dollars more than it used to get under the old system.

The Rev. Father Lacasse is about to address you on the subject of agricultural schools, pressing you to send your children to them. I will not say that I have improved them, but I will say that they are just what our people need. They are inspected every three months, and I must say that the last inspection gave us perfect satisfaction. There is one not for from here, built at a great expense; another is at Oka, a third at Ste-Anne Lapocatière, and a fourth at Compton; none of them is short of pupils.

There are now 85 pupils in our agricultural schools, while four years ago there were hardly twelve or fifteen.

I know that you will say: "We cannot afford to pay for our children." What have you done for that small scholar whom you have clad in a fine frock-coat with white cording? Oh! you want him to be a doctor, or worse, an advocate, and you send him to college. He costs you there $100, $125, or $150 a year, without reckoning what he has spent upon his trips in the holidays. And what has he done? Sometimes he turns out to be an inferior advocate; and, in many cases, he has not gained much. Take the generality of cases; you are much better off, and your sons will be much better off as farmers than the majority of these abortive advocates, for neither you nor they will ever feel the want of bread. Only yesterday, I saw an advocate who had nothing to eat; he asked me for a place, saying: "The profession no longer pays one." "There, that is what you may expect will be the fate of those on whom you have expended so much money.

Oh! Spend your money rather for the good farmer whom you are going to have on your farm to continue the good traditions of your family. Don't say that he will be "all right," that he doesn't want any schooling. Was that the style of argument you used when you sent your lad to College? Did you say to yourself He needs no teaching; he'll watch the other advocates and imitate them? Remember that our profession of farming is as noble as any of the others, so called liberal, where there is so much destitution, without reckoning those who have plunged into the sea of politics.

Do not imagine that we only teach theory to our pupils. We teach them practical agriculture as well, so that they may help their fathers when they return home. But, say you: You charge $7.00 a month! That is true, but in each school there is a certain number of scholarships, and every lad that goes there may say to himself: If I am steady and industrious, my father will have nothing to pay for my schooling.

I am anxious to explain these things to you, because we have begun a crusade in this direction; we have opened the schools, and they must be filled with pupils.

In Ontario, the College at Guelph has 125 students. We have 85 pupils. We want more.

We have four schools, reckoning the English school at Compton. The school at Assomption is thoroughly well fitted up and stocked; the reports received this week have given us perfect satisfaction.

There is the school at Oka, which is a school that aims at teaching everything connected with agriculture: general cultivation, dairying, breeding, forestry and orcharding, the butchers' trade, making preserves. Your son may select any branch he pleases out of all these, according to his taste.

The inspection of creameries and cheeseries is by no means an easy task. Doubtless our system errs in more than one point, but one of its chief defects is that the reception, or non-acceptance, of milk at factories is not sufficiently strict. It but too frequently happens that milk that should be rejected is accepted on an account of competition with other factories. This must be changed entirely. A factory, at

sends inferior goods to market, greatly injures the general dairy-trade ; its cheese is put by the dealers with good cheese, and thereby the whole bulk of our products are deteriorated. To put a stop to this, it seems to me that the inspection should be a great deal more strict.

A misfortune happened to us this year ; I refer to the purchase of a lot of bad rennet. But that was not the fault of our Association, as it is not its business to inspect this article in the dealers shops.

I might have more to say to you, but I have detained you long enough, and now yield my place to others. As I have done my best freely, it is time for me to listen to others, and, in my turn, to gain instruction from their lips.

ADDRESS OF DOM ANTOINE, MITRED ABBOT OF LA TRAPPE AT OKA.

Gentlemen,

As the Minister has well said, I ought to be silent, or content myself with listening ; or better still, I should have remained at the Monastery ; but I was guilty of leaving it, so now I must try to repair my fault.

I am sorry I have to follow M. Beaubien, for I fear less my words should make you forget the profitable thoughts he imparted to you.

Still, I must say a few words to thank the people of Joliette for this fine meeting, and more particularly to express my gratitude for their liberal, pleasant, and brotherly hospitality to those excellent members of the religious orders who, I am convinced, have contributed not a little to the prosperity of this bewitching little town.

As has been already said by others, I, too, see with pleasure the numerous attendance at your meeting this evening. I have had the pleasure for several years of being present at the meetings of the Association, and I do not think I have ever observed so full a one. I have never seen a convention followed by the listeners with so much attention, so much visible satisfaction ; this is a sign that the crusade, begun some years ago, has produced its fruit. The first years, as a man who was travelling with me this morning remarked, the attendance was scanty, and there appeared to be great doubts as to the ultimate fate of the dairy-industry. To-day, every one is interested ; people are ardently attached to this dairy-trade that has already done so much for them, and promises to do still more, if all the attention it merits is bestowed upon it, if people profit by the practical advice that is given them on every occasion, particularly to-day.

I congratulate you, then, on the success of this convention. Besides, the site was particularly well selected for such a meeting : I have looked over your town ; I have observed the cleanliness, the good order that reigns everywhere in it ; everything reveals a population intelligent and endowed with a great spirit of enterprise. (Cheers). I have visited many countries, and I feel that I may say that I have never met with so pretty a little town as your town of Joliette: (Cheers).

I was not prepared to address you this evening, but at any rate I will relate to you a few observations on the things I have seen during the last few days. I have just come from the Maritime Provinces, and, as usual, I have profited by my journey to learn something. I found the country rather low-lying and *côteux* (near the sea-shore ?), especially in Nova-Scotia. Appearances, in themselves, are not very gay, but I remarked, by my own observation, as well as by the testimony of travellers and persons who know the country well, that there is a certain air of prosperity among the people. Still, there, as well as in the province of Quebec, sales are rare and business is not flourishing.

As far as I could see, there are divers causes that tend towards the prosperity of that province. First, a spirit of economy. I visited an Acadian parish, and a person said to me : Here, we are not rich, but, out of 200 families, there is not one that is in debt. (Cheers). There are parishes, in Quebec, in which the very opposite would be the exact truth. And yet, the land is not so good as in many of our Canadian parishes ; but the people I speak of have the spirit of economy, and only spend that which they have in hand ; they do not live on the future.

Another thing I remarked there, the great care the farmers took not to lose any of the manure.

In another parish, they told me of one who was considered a farmer indeed (1), in spite of his farm being very poor land, on which bull-rushes grew everywhere. Well ! this farmer had an extraordinary crop of hay this season : he told me that the urine was a most valuable thing, he never lost a drop of it.

Another thing that I observed in Nova-Scotia is that *they manured the meadows :* I am speaking of true meadows. The best plan of spreading the urine is this : the operation is very simple : all that has to be done is put a puncheon on a tumbrel, or dung-cart, with a tap and a trough behind the cart. (2) A horse draws the cart, etc., over the meadow and the thing is done ; the crop is doubled and even tripled by the dressing, some of the hay this year being five feet high.

Monsieur Beaubien spoke to you about the agricultural schools. I manage one of them, and I will say a few words on the subject this evening, in reply to certain objections, and particularly to certain attacks, which were possibly not without foundation formerly, but are so no longer. It was said that these schools were not conducted in earnest ; that those who attended them were wasting their time ; if this was true then, it is not true now : our school has not been long established, but I hesitate not to aver that many of the lads who have been with us have worked in real earnest, some who have stayed with us for even a short time have certainly profited greatly by their sojourn with us. Not long ago, one of them got a capital situation : I am surprised not to see him here to-day : they came to the school to

(1) *Cultivateur émérite ;* like a Roman soldier (emeritus) who had served his time, and thence forward fought only when the republic was in danger.—A. R. J. F

(2) For liquid manure, tank, puncheon, etc., see *Journal of Agriculture ;* vol. vi, p 166 ; vol. vii, p. 1.—A. R. J. F.

fetch him : he been with us nearly three years. The farmer who engaged him is so well pleased with him that he is to give him forty dollars a month and board from the month of April. Many others have been remarkably successful, and have now good situations.

A few of our young men, who left us last year, entered into a partnership to run a creamery, and now they write me word that they have no reason to repent of their action. They paid their patrons 5 to 6 cents more than other factories during the summer.

Another told me, that he never could forget the good he had reaped during his time spent at Oka.

I am happy in being able to thank the Hon. the Commissioner of Agriculture for his kindness in having granted our request to have the scholarships distributed in a different manner. This reform has created a great deal of emulation, and the results are excellent. Formerly, the first vacant scholarship (1) fell to the first applicant ; now, if any one desires to obtain one he must work for it, and he must, if he wants to retain it, keep on working. Out of the 25 pupils that have been with us a few months, I do not fear to affirm that there are least 20 who, by their industry and application, have deserved to have these bursaries.

Good results then have been produced by these schools, and I think the movement will continue and spread. Formerly, when lads came to these schools because they had nowhere else to go to, they did no work ; there were no traditions of work such as we find in them now.

There is one point on which I do not entirely agree with the Minister ; I say, not entirely. I was born in a country of which a good deal of bad has been said, and of which a great deal of good might be said. I am a Vendéean, and I fancy things go on here pretty much as they do in la Vendée. If they rejoice there when a family shows a wish to send one of the children to school, it is not because it is hoped that later in life that child will become an advocate, or will join some other liberal profession, but because they believe that the child will ultimately become a priest. It is, sometimes, a painful experience they pass through, when the lad is seen to wander from the path in which he was placed, and turn to political oratory, legal disputations in the courts, or other like things. I feel that the earnestness with which those devoted Christian families make such sacrifices for the purpose of procuring another priest for the Lord, is worthy of all admiration. The Priesthood is indisputably the grandest of all careers ; the fullest of dangers too, and the one that requires the greatest sacrifices ; but after the priesthood, the grandest career of all is the career of the farmer. And if sacrifices are made for the securing of good priests, they ought also to be made to secure good farmers. (Cheers). Nothing is won without trouble, no more in making a good farmer than in anything else.

(1) *Bursary* at Edinburgh ; *scholarship* at Oxford and Cambridge ; *exhibition* at the great public schools, Eton, Harrow, Winchester, etc.—A. R. J. F.

The Hon. the Minister made this remark : farmers say : "I learned to farm from my father ; he lived with what he knew about farming, and I can do the same." Formerly, this was true, but it is so no longer ; nowadays, it demands more science ; a great deal of real science (knowledge) is needed to be a good farmer. Some sort of a farmer one may become, but to be a model farmer, a man must be an earnest student and this it is that we have been trying for many a day to make people understand.

I thank you for your attention ; there are still many things on the programme of this evening, so I retire.

M. Bazinet, M. P.—I hope the meeting will excuse me : I did not expect to be called upon to speak this evening, and as I am not accustomed to public speaking, I beg M. Tellier to address you in my stead.

SPEECH OF M. TELLIER, M. P. P.

Mr. President and Gentlemen,

I accept with pleasure the invitation you give me, not to make a speech, but to acquit myself of a bounden duty. This duty is to offer to the Association my most sincere thanks for having accepted the invitation I made to it last year, through the president, to hold its annual convention at Joliette. As the Mayor said in his address, it is an honor to Joliette, and it gives me pleasure to see the people of the town and of the neighboring districts pressing towards this hall, thereby showing that they fully appreciate the advantages offered to them.

No one can doubt the success of this meeting, and I am proud of it, both as a citizen of Joliette, and because I am interested in all those matters that are the objects of the deliberations of this convention. I am not a farmer, but permit me to say that my heart would not be in its proper place, did I not feel the most lively interest in all that is connected with the life of the agricultural classes, seeing that I myself am the son of a farmer of this county.

We have here to-day a very rare sight : that of men on the platform who are well known in the House, contending with knowledge and experience for the success of a common cause, the cause of agriculture. Thank goodness, Mr. President, the agricultural question is not, and never will be, a political question in the province of Quebec. As soon as an agricultural point comes up, we see with pleasure men of good will give each other the hand, and unite under the same banner to labor for the general interests of the country. (Cheers). And it is thanks to this that we have had the honor this evening of seeing the Hon. Minister of Agriculture of Canada, at the same time as the Hon. Commissioner of Agriculture of the Province of Quebec, on the same platform. (Cheers).

Allow me also to offer you my thanks and my congratulations on the readiness with which you have responded to the appeal of the Dairymen's Association. From this convention, we have every reason to hope, great results will spring in this our

district. We see, here present, many directors of agricultural societies. All these men are here to give us the results of their studies and experience, that we may profit by the fruit of their labors. I unite with the Mayor of our town in saying to them: Welcome among us; and accept, we pray you, our warmest gratitude. (Cheers).

Address of Mr. R. A. Lister, Dursley, England.

Mr. R. A. Lister spoke in English. Unfortunately, his address, so full of practical advice and so interesting, could not be taken in short-hand.

Mr. J. C. Chapais gave the following abstract of it in French:

My task to-day is not a pleasant one; it is very difficult to do justice to Mr. Lister, and to repeat to you all that he said in his address; but I will try to give you the leading points of his remarkable address.

Mr. Lister begun by excusing himself for not being able to speak to you in French, but he expressed himself so well that many of you must have understood him. If Mr. Lister does not speak French, he at least understands it perfectly.

Mr. Lister approves of what M. Beaubien said about the roads.

He visited our dairy-school in St-Hyacinthe, and said that it was an establishment that would do honor to any country in Europe.

Mr. Lister said that in Europe, as well as here, it was felt that the youths should be induced to study agriculture, as the liberal professions especially in England, are over-crowded.

He paid many compliments to our cheese which, he said, had taken a good position on European markets and would long retain it. But he did not speak so well of our butter; it had two great faults: it is oily and too salt. He recommends greater attention to the care of our milk, to pasteurise the cream, and then to cool it rapidly, before ripening it.

Mr. Lister remarked that we had not here very good means of disposing of our skim milk, and that it was very desirable that we should have some. In England it was used for making bread, biscuits, &c.

He pressingly urged us to go largely into pig-breeding, as they would utilise the remains of the milk. To show the importance of this trade, he stated that England imported weekly 300,000 pigs from the continent; moreover, he said that within twelve days from the death of the pig, the breeder received his money.

The English consumer wanted the best goods, and did not mind what they cost if they really suited him. In every hotel, in England, good ham, cutlets, and bacon were to be found; they are a national dish, and never fail. As the great London, whose population is unite equal to that of the whole of Canada, produces nothing itself, it is clear that it must search the markets of the whole world to supply it with provisions.

Mr. Lister laid great stress on our goods being sold as Canadian goods. There are many things sold on the English markets as Canadian, that are not so good as our

goods. It would be wise, he said, to have a special part of London set apart for the sale of Canadian products alone.

Seeing such a crowd here this evening, Mr. Lister was happy to be able to say that the English are more inclined to buy our products then those from other countries, because they look upon us as cousins; there is a national bond of union between us. He added that the wealth of our country was well known to the peoples across the ocean, and he hoped we would take means to profit by it and exploit it in a constantly increasing manner.

The above, Gentlemen, is an abstract of all the good things Mr. Lister addressed to you, as far as I have been able to make it intelligible. (Cheers).

The Chairman read a telegram form Mr. Allard, member for Berthier, excusing himself for not being able to be present at the meeting.

LUMINOUS PROJECTIONS, BY M. E. CASTEL.

M. Castel.—The idea of applying the magic lantern to the illustration of public lectures is by no means a novelty, and this sort of attraction is constantly employed in France, in England, and in the United States. Thousands of collections of slides are offered for sale in the catalogues of MM. Molteni, Mazo, McAllister and others; but among them all, there is hardly to be met with one slide appropriated to instruction in agriculture. When my zealous predecessor in this office, Mr. Taché, spoke to me for the first time about devoting one of the sessions at one of our conventions to this purpose, we were met by this difficulty, and the artist to whom we applied had not time to prepare the slides before the St. Hyacinthe meeting; consequently, the project, though not abandoned, had to be postponed. During a short and cursory visit to Chicago, I was lucky enough to fall in with the prospectus of the "Société Française de propagande de l'Enseignement par l'aspect" (teaching by means of object-lessons). I wrote to the promoters; their reply was delayed, and did not reach me till last year; it contained an invitation to attend a Congress, that the society proposed to hold at Havre, in August, 1895. I followed... from afar, but with great interest, the labors of the Congress, and I had determined to buy an apparatus and to try and form a collection of slides for the use of our agricultural lecturers, when I was fortunate enough to be introduced, at Montreal, to the abbé Guillemette, professor of science, whom the gentlemen of the seminary had brought from France, to organize the course of science in their seminary of philosophy. In him, I found an earnest admirer of the magic lantern, and his enthusiasm confirmed me in my resolution. I was particularly encouraged by M. Chapais, M. l'abbé Choquette, by the agricultural missioners, and by other devoted friends of the cause of agricultural progress in this province.

The sole real difficulty was the want of slides, and the consequent necessity of making a collection of them. This is a difficulty, but it is not insurmountable, and, with a little encouragement, it would be comparatively easy to make, by degrees, a useful and pretty collection, and in that way we should be able to get together a lot

of views suited to our local needs. I have a regular plan, in this connection, ready to be submitted to those whose duty it is to encourage this kind of enterprise.

M. Chapais was to address you this evening on "Meadows and pastures," and we have prepared a number of slides to set before you the resemblance of the grasses and leguminous plants recommended in M. Chapais' lecture. The evening is too far advanced for M. Chapais to treat at present this important subject, but, as we are not in a position to make a "dark chamber" of this large hall, in broad day-light, I will show you, this evening, the plants of which M. Chapais will speak to you to-morrow.

M. Castel then threw forward on the wall (?), with the apparatus "Helios," by Mazo, and with the oxy-hydrogen light, the following views:

Timothy.
Orchard-grass
Meadow-foxtail.
Rough Meadow grass.
Junc-grass.
Meadow-fescue.
Blue-grass—for paper-making.
Rushes.

And, in a composite picture, the different sorts of clover, so as to admit of making comparisons.

M. Castel then exhibited other views, to show the variety of subjects that the agricultural lecturers could illustrate by means of the magic lantern.

REPORT OF M. J. D. LECLAIR,

Superintendent of the St. Hyacinthe Dairy-school.

Mr. President and Gentlemen,

The Dairy-school.—I have the honor to report to you the work done in your Dairy-school at St. Hyacinthe. The courses given during the season of 1895, '96 were attended by a lesser number of pupils than the previous season, with a greater number of applications; such was the consequence of the season of 1895 having been peculiarly disastrous to cheese-makers.

We had foreseen an increase in the production of butter, and this was fully justified by the reports of the exports for the season.

These abridged courses given at your school are greatly appreciated by the public, and are incontestably useful; not that I suppose any one attempts to dispute their utility: still, I think the time has arrived to make them more complete. Let us judge of them by the pains taken to improve everywhere our butter and cheese, and to send them in perfect condition to the English market. Would it not be sad

were we to stop before we arrived at the highest rung of the ladder, owing to the incompetence of our makers? From the establishment of these courses would result an indirect advantage, that of proving to demonstration that the making of butter and cheese is an art that cannot be learned without earnest study and great practice.

To establish your school on a footing appropriate to a provincial school of this kind, and to the importance of our dairy industry, I have laid before the school-committee certain reforms that will, I hope, be adopted, at any rate in principle.

Inspection of creameries.—In these conventions of our Dairymen's Association, that collect together, year by year, men having a common interest, that of profitable dairying, every one is called upon to contribute his little subsidy of work and experience. This result cannot be obtained by describing our successes and blinking at our failures; if this were done, strangers, and especially the buyers, who read our reports, would not fail to remark that we have a pretty high idea of our own value, or that we are trying to get our goods quoted at top prices by the use of bragging. Let us rather show that we are doing our earnest best to prepare them good commodities, and that we aim at obtaining a solid reputation founded on the quality of our products.

In giving you a description of the visits I have paid to about a hundred creameries in this province, I was impressed with this idea, that, as a true friend to our dairy-trade, I would only speak to you about the chief faults found in the general management of factories and chiefly of the faults committed in the making of butter. We are here *en famille*, so, as Napoleon said, it is the proper place for us to wash our dirty dresses.

The milk is not looked after either for purity, quality, or for the determination of losses.

1.—As to purity. The lactodensimeter is not used, and in many places there is not one. They trust to the patrons, they know them well! Then there is the inspector; but he cannot be everywhere; except in the syndicated factories, there is not 3o/o of the rest that make any attempt to control the milk.

2.—Quality. Dirty, sour, badly kept milk is to be found, and in many factories, they make no fuss about accepting dirty, stale, badly aerated milk, for fear of losing clients (?), if they find fault with them.

3.—Determination of losses. If a business is to pay it must be well managed, i. e., we must take care to make the most profitable use of the raw material we receive. Does the maker, who engages himself as competent, calculate the losses? How does he set about getting the greatest possible yield from the cream? In almost every case, he does nothing; in the syndicated factories, the work at least is done by the inspector.

Goodness knows there are plenty of losses, in the buttermilk especially. A factory owner should insist upon his maker giving in daily a report showing how the skimming and churning have been done, and the losses of fat in each case. The important size of many factories imperatively demand it, at the risk of suffering great

losses and of finding deception and dissappointments instead of profits in butter-making.

Careless ripening.—In many cases, I have found to my sorrow that the ripening of the cream is a matter of chance. Its proper management is not understood, and the time for churning being at hand, the cream is taken anyhow, just as it happens, and, no wonder, all sorts of butter are turned out. With the kind permission of some of the Montreal dealers, I examined, in spring, in summer, and in autumn, the butter in their warehouses, and I found there the finest example of want of uniformity that could be looked for. Many people enter into this trade without being familiar with it, without even suspecting that one must serve an apprenticeship if one is to thoroughly understand a trade. What a pile of letters have I received from makers in trouble about the most ordinary difficulties of their business!

I am not speaking now of those who do their work badly on purpose; such cases are rare, but I did once meet a maker who replied to me without hesitation: "Yes, sir, when I make bad butter, it is because I meant it to be bad!"

—How much did you pay your patrons for such a month, asked I?

—Fifty-eight cents; that is, the average paid by the other factories for the same month.

But his butter was in the ice-house, waiting for some not over-particular buyer, who never made his appearance The proprietor had to take 12 cents a pound for it. I could name others whose butter was trotted about from warehouse to warehouse; however, these makers were not so much actuated by ill-will as the other was.

Churning too hot in summer, too cold in the fall – In many creameries, they churn at too high a temperature, and the result is that the butter is soft, washes badly, retains much water, and is greasy in texture. Beside these defects, the loss of fat is always greater. I may observe here that thick cream may be always churned at a lower temperature than thin cream.

In the fall, if the cream is too cool, the butter will not easily pack together, and fails to be homogeneous; the dealers call it butter that *s'égrène* (*tumbles into bits; but the term is technical*, A. R. J. F.). This is caused by the grains of butter being crushed by the worker when mixing in the salt.

In autumn, ripening ought not to be done at so low a temperature, as the butter would have a tendency to acquire a bitter taste; on the other hand, the temperature must not be too high, in which case the butter would be sour, sharp, and biting. I strongly advice the use of pure cultures of lactic ferments, because the conditions under which milk is produced in the fall are usually bad, and it is not easy to secure at the creamery milk fit to prepare a good ferment.

I ought to mention that the buildings are generally too slight in construction, and are not sufficiently protective, at any time of year, against the exterior temperature.

The steamers and railroads are provided with cold compartments; but what are our creamery men about?

The necessity of placing our butter on the market in a fresh state, and not having lost any of its flavor, is well understood, and we must rejoice at the sight of the measures that are being taken to secure this; but we trust entirely in the cold storages, and make hardly any alteration in our methods in the creameries. Let us frankly confess it; the reason for the increase of our exports is due rather to the improved system of exportation than to any increase in the real value of our butter. I examined the butter exhibited at three of the provincial competitions last year, in addition to my regular visits to creameries, and I advance this opinion on the samples of about 200 factories. In examining my notes, I hardly find mentioned therein ten creameries the butter of which had a really fine flavor; to be precise—if we take the *nutty* flavor as the ideal of the flavor sought for – there was only one sample. I do not rank with the dealers, you observe; on the market, the difference in price between the best and the worst is hardly half a cent. I ask, *en passant:* would it not be the best and shortest way to ensure the making of good butter and cheese, if we were to get the dealers to pay for them according to their real value. It is enough to paralyze the efforts of every inspector in the world, if the buyers do not understand or will not give the only possible sanction to the suggestion and advice we have to give, by paying the true value of each article.

A dealer said to me last year: we will buy no cheese put into an inferior box. That is quite right, replied I, and if next year you will buy nothing but good cheese, in two years hence there will be none other on the market.

Defects in butter from external causes.—In the first place, let us notice the evil odors derived from milk allowed to stagnate and putrefy round the factories, for want of drainage. The analyst of the butters exhibited at the provincial competitions pointed out this cause, which is but too common and too marked. In many of the samples taken, we traced the strange and peculiar aroma to the bad smells of the factory, whether the butter had been exposed to them, or the cream had absorbed them. At two successive competitions, we found the same make of butter faulty from the same cause: bad smells, and this fact was confirmed by the inspector of the syndicate. I myself have found butter having exactly the peculiar aroma imparted by the emanations that arise from the false-bottom of the cream-vat. In my opinion, it is absolutely necessary that steps be taken, either by the local boards of health, or by other authorities, indirectly, to deprive these factories of certain advantages granted solely to those in good order. Such a bad external state of cleanliness will always make its deleterious influence felt and will help to keep us in a position of inferiority to our foreign competitors.

I need not insist upon the pressing need of these reforms: it is admitted that, if dairying is to be profitable, it must be carried on in winter as well as in summer. Now, our exporters will take cheese made in the fall and in winter, and they say that our winter-made butters do not answer for exportation; we see ourselves that our November and December butters sell for less than the September and October butters.

What is to be done then ? Give it up we cannot, the only thing to be done is to make as good butter in winter as in summer. That this can be done, is now admitted ; it is our part to take the proper means to do it.

Before concluding, a word on the white spots or mottles in butter : they are caused by either the imperfect mixing of the salt, or by dried or unequally ripened cream.

Discussion of M. Leclair's Report.

The Reporter of "Le Prix-Courant."—Have you any suggestions to make as to the way to improve the making of butter in winter. The exporters of butter at Montreal say that the best butter cannot be made in winter.

M. Leclair.—One of the best means of improving the making of winter butter is to use ferments. To have good flavoured winter-butter, a newly calved cow's milk should be mixed with the milk of 5 or 6 others ; the proportion should not be less.

Bitter taste is caused by the use of too stale milk.

M. Vaillancourt.—To what do you attribute that taste of the cowhouse that is present in almost all winter-made butter ?

M. Leclair.—This taste proceeds chiefly from the careless way cows are treated in the cowhouse ; the stalls are filthy, and there is a great absence of ventilation : Most of the cowhouses are not ventilated at all, or at least imperfectly. The ventilators ought to be not less than 15 to 18 inches broad, instead of the usual 6 inches.

A Butter-maker.—When there is not enough milk to be worth sending to the factory, and it is wished to make butter at home, is the process of making the same ?

M. Leclair.—The making of butter at home and at the factory does not vary, except that, in the home-dairy, the cream must not be fermented until it is all gathered, that is to say, that the day's cream and that of the previous day must be thoroughly mixed together before fermentation ; the cream must not be more than 36 hours old ; the interval between the last skimming and the churning should be 12 to 24 hours ; in other respects, the rules are the same for both home and creamery.

M. Chapais.—We should like to have some explanation about ferments ; I fancy most of us know but little about them. Tell us, please, about their use and effects.

M. Leclair.—When milk is of good quality, certain aromatic principles are developed during fermentation that communicate themselves to the butter. When cows are far advanced in their period of lactation, or are not so well fed as usual, these principles cease to subsist or to develop themselves. But if milk can be had in such condition that the germs of these aromatics are present, these germs can be propagated out of contact with the air, and it is these germs that are known as *ferments*. Now, these are recommended to be used, because it is necessary that no

butter that is not suited to the taste of the consumer be placed on the market. The consumer's taste has been formed by eating the good butters of spring and summer, and he expects butter to have invariably that fine flavor ; but a season comes when milk can no longer yield so finely flavored a butter, and it is then that we must use ferments, in order to impart to the butter that aroma which it cannot naturally possess. That is the effect of ferments.

M. Chapais.—You told us that ferments can be kept for some time ; will you be good enough to tell us how to keep them when we have once got hold of them ?

M. Leclair.—They are to be propagated in this way : Pasteurise, at 170° F., the quantity of skim-milk indicated in the directions attached to each package of lactic ferment ; cool that milk as quickly as possible down to 88° F., pour into it the ferment, mixing them well together ; put the mixture aside for 24 hours in a place where that temperature can be maintained. Then, if the curd is not very firm, on account of the lowering of the temperature, warm it up, without stirring, and let it rest for a time. Then take this *startoline*, as it is called, into a cool place, not of course below 32° F., and it is ready to be added to the cream. After having made a first preparation, you are to take some of it and mix it with your cream in the proportion of 5 °/₀. The remainder of your preparation you are to add, at the rate of 10 °/₀, to some pasteurised skim-milk. Pasteurisation has the effect of freeing the milk from the principal unhealthy germs that it contains, and which stifle the developement of the healthy germs. You use this second preparation as the first ; you again keep back the remains of your preparation for the purpose of propagating it as before, and so on for a period that I cannot determine, since it entirely depends upon the place in which the preparation is kept, and any taint it may imbibe. It is best to place it in a vessel closed with wadding, which makes a much more hermetic stopper than cork.

You can also employ a ferment of the buttermilk after you have once used your preparation. Keep back some of this buttermilk, and add it, at the rate of 10 °/₀, to your cream. This you can use as long as the flavor remains unchanged, but as soon as any change supervenes in its taste, leave it off. Then you return to your first preparation, and keep on until you perceive that the buttermilk is no longer fit to impart to your butter the desired flavor... A first preparation may be propagated five or six times ; I must not lay down limits, for all depends on the changes that may take place in your preparation and the care you have taken for its preservation.

The President.—Have you any advice to give us for the improvement of winter-made butter ?

M. Leclair.—Besides the addition of ferments, there is one thing necessary, and that you may insist upon from the producers of milk. You know that the milk of each newly calved cow, mixed with the milk of a cow that calved some months ago, has a beneficial effect ; and this is what ought to be provided for, since we have to

make butter in winter. You ought, then, to arrange matters so that these shall always be newly calved cows' milk to mix with that of stale cows' milk.

M. l'abbé Côté —In what proportion ?

M. Leclair.—Prof. Robertson says the proportion should be one to eight.

A Delegate.—Do cows require any special food in winter ?

M. Leclair.—Sound, wholesome food and clear water, is what they need, made up into a *well balanced ration.* If you give cows too much grain, the effects will not be good.

M. Chapais.—The Danes export more butter in winter than in summer.

M. Leclair.—And yet the Danish pastures are not open any longer than ours in this province. Still, they carry on dairy-work more extensively in winter than in summer, and we found, when on our tour, that the months in which there was the least milk were July and August. The greatest quantity of milk is delivered at the factories in January, February and March; so, it is clear that the Danes, seeing the necessity of having milk in winter, produce more in that season than in summer.

M. Taché.—Do you think that the Danes, who make good butter, only deliver their milk every two or three days in winter ?

M. Leclair.—No; it is impossible. The bad butter we see at Montreal is injured by the milk being kept in a frozen state for two or three days by the patrons. That is the reason of the bitter taste people complain of.

An Unknown.—Can milk be kept at the farm ?

M. Leclair.—Yes, but particular care is required.

An Unknown.—Can it be kept at the factory in order to lessen the number of times of skimming ? (1)

M. Leclair.—Yes, but I would not advise it; for milk arrives at the creameries full of so many injurious germs that good results could not be obtained. I do not say it is impossible, but I consider it utterly impracticable.

M. l'abbé Côté.—Would milk kept, in winter, at 50° to 60°, as in summer, be in good condition ?

M. Leclair.—That temperature would do much better. It would be difficult, though, to keep it for more than two days.

The more we deal with fresh milk, the better will our butter be; one great fault of farmers is that they do not aerate their milk enough.

The Unknown.—I heard that an exporter of butter and cheese, M. Vaillancourt, said that it was impossible to export Canadian winter butter, on account of the vile flavor it imbibed from the cow-houses. Did you observe that the Danes kept their cow-houses in better order that we do ?

M. Leclair.—I found that the ventilation in the Danish cow-houses was better than in ours, and that they were kept very much cleaner than ours are kept. As

(1) This is rather dark; the translator must confess he does not understand what is meant. A. R. J. F.

to their state in winter I cannot say anything about it, as my tour was taken in summer.

The Unknown.—I asked a man why he had stopped making butter lately: he replied that it was because the milk reached him in such bad order. Does that depend upon dirty cowsheds or stale-calved cows?

M. Leclair.—In the case you mention, it depends probably upon a general assemblage of all these circumstances.

Mr. Barnard.—Is it not true that the temperatnre of Denmark is about the same as ours, but that the Danish method of making differs from ours?

M. Leclair.—They are under better climatic conditions than we, in summer, but their winter is not more favourable.

The Unknown.—What opinion have you of a maker who, in October, would only let his patrons deliver milk every other day?

M. Leclair.—I should say that he paid more attention to the bad state of the roads, and the small quantity of milk and money to be made, than he paid to the making of good butter.

M. Brodeur.—Do you, at St. Hyacinthe, receive milk every day?

M. Leclair.—Yes, every day, but not from the same patrons, so that we are like the rest, as we only get two days old milk. In some measure, we remedy this evil by the use of ferments, and if our patrons better understood their own interests, and calved down their cows in the fall, they would soon take to delivering their milk daily.

M. Brodeur.—If at a factory the patrons had only 20 lbs. or 30 lbs. of milk to cart to a distance of two or three miles, would it not be better to close the factory, than to receive milk only every two days.

M. Leclair.—True, but, in a school, milk must be had; and this is the reason we keep on remonstrating so severely with our patrons; unless we did so, we should never get anything but bad butter. Farmers now experience a good deal of trouble with their milk, but, as they get more careful, these difficulties will vanish.

M. Brodeur.—You make them keep their milk as in summer; you ask them not to let it freeze?

M. Leclair.—The best temperature to keep it at is forty degrees.

M. Brodeur.—Would it not be sufficient to ask the patrons not to let their milk freeze?

M. Leclair.—It would be better to advise them to keep it at a rather higher temperature than that means; better results would be obtained. I have made on experiments on milk kept at 30°, 40°, or 45°; it is simply my personal opinion.

M. Taché.—One remark as to winter-butter making. Even if we cannot make butter good enough for the export-trade, in winter, it does not follow that we should give up making butter in winter. I think there is a middle-term: make it for the local supply. I fancy the local market is less difficult to please than the English market.

M. Vaillancourt.—M. Taché says that the local market is less difficult to please than the English market; I do not agree with him. Two or three creameries, where I deal, make excellent butter, perfect, and Montreal consumers are hard to please. Not a pound of this butter I am speaking of has ever been exported; we have not enough of it to supply the home-trade. Now, in my quality of a Montreal butter-man, in my own name as well as in the name of the trade, I congratulate M. Leclair on his splendid address. Would that all our dealers could have listened to him. I hope every butter-maker will read his words in the annual report of the Association, and, if M. Leclair succeeds in putting his ideas into practice, he will have done more to benefit the public than any man of his time.

There are people who think they can do without putting their butter into an ice-house, because we now have refrigerator-cars; but they are wrong, and putting the butter into the cellar until the day of sending it off is not enough. If our butter has risen in price on the English market, during the last two years, it is entirely owing to system of freight. And it is certain that if we put our butter into the icehouse until it leaves, we shall get a still higher price for it than we have as yet; for there is still a good deal of margin between the price of Canadian and the price of Danish butter.

One great fault in our winter-butter is that it smells of the cow-house, and my idea is that this arises from want of care. That fault is not found, I am told, in Danish butter.

It is very difficult now for us to export winter-made butter, and I do not think we shall ever be able to compete with Denmark, so long as we do not practise better methods of making. The Danes always have fresh-calved cows, and mix their milk with the milk of stale cows, which is not often the custom here, though there is a vast difference between the two kinds. Perhaps, if we attend to this detail, we might compete successfully with the Danes.

Another defect in our butter, is the colour. At present, the English require very fresh butter, lightly salted and very pale. Some very capital butter was exhibited at the competitions, but it got no prizes because it was too salt. Three-fifths of an ounce to the pound is the proportion for the English market. These trifling faults in the making are the easiest to get rid of, for the number of makers to be reformed is far less than the number of patrons. Besides, the makers go to school, and put into practice the lessons they receive there.

I consider that the keeping of milk two or three days in the house does more harm to the cheese made from it than to butter. There is no doubt that, in this case, a great deal of cream goes into the whey; the cheese is difficult to work, and when made is, in quality, what is called "horny" (cornu): there is cheese sent to Montreal of this kind, and it might be taken for *curd* that had not yet become cheese.

But, to return to butter, I advise every one to read M. Leclair's report: aye, to learn it by heart, and then there will no longer be such a difference as 15 to 18 shillings a cwt, between Danish and Canadian butter.

Mr. Barnard.—The Danes started under far more difficult conditions than we did. The government helped the leaders of the dairy movement; they began by opening a school, and those who attended it learned their lessons perfectly; consequently, all the butter made in Denmark is of the finest quality. There is hardly second and third class butter to be found there. Let us encourage our creameries to make good butter, and let our farmers strive to deliver as good milk in winter as in summer.

M. Castel.—I beg to remark that what M. Leclair said of the factories applies only to the hundred creameries he visited.

M. N.-E. Clément.—I have not much to add to what Mr. Vaillancourt said. I am not prepared to make a speech, and, not having the experience of an old dealer, I have nothing to add to his remarks. He spoke to you about the inferior fall-cheese, due as much to the bad installation of the factories as to the two days old milk. A maker myself, I advise all makers, who cannot control the temperature of their factories, to stop making, altogether, as cheese made under these conditions will greatly injure our European trade. We often find it hard to sell this inferior cheese; there are makers who have not even a cheese taster (1); how, on earth, can they tell what sort of cheese they are marketing? If a maker is so situated that he cannot make a good article, he ought to stop making cheese.

I trust this state of things will soon be improved, when proper means have been taken, and people see how necessary it is to make these reforms.

M. Archambault.—In my opinion, we ought to begin by improving the raw material. The milk delivered at the creameries is far from beeing uniformly good. It often has a bad flavor. I was once at a hotel where they gave me bad-tasted milk, and told me that it was bad owing to the cow-house having been recently tarred! And, really, the milk did taste of tar. Many people give sulphurous water to their cows; and when such milk is taken to the creamery, how can good butter be made from it?

M. Chapais.—At our place, we draw the milk twice a day, and we have succeeded in making a pound of cheese from 9.45 pounds of milk, which Mr. Macpherson says is due to the twice a day delivery. By this plan, the milk is not skimmed, it is at once placed under the maker's care, absorbs no bad taste, and can give up all the butter or cheese it contains.

In my frequent travels, I always visit the cow-houses in winter. The worst features I have observed in them are: want of ventilation and the stagnation of the urine on the floors. Many of our modern buildings have ventilators, but in spite of than they are badly ventilated, as the ventilators do not act; they are too small to have much effect. At least 15 inches should be the width of the ventilator where it enters the cow-house. They ought to descend almost to the floor, on account of certain heavy gases, like carbonic acid, which will not escape unless the ventilation

(1) To bore out a plug of cheese—*sonde*. A. R. J. F.

comes almost down to the pavement. You may be sure that this is a very important question, this of ventilation.

As to the stagnant urine, it is due to the floors being uneven; the liquid is retained in the hollows, putrefies there, and if it is desired to have the cow-houses clean, the floor must be levelled. I have seen some cow-houses that seemed thoroughly well kept; every thing seemed perfect, and yet the milk had a bad taste. It was clearly due to the urine remaining in puddles on the floor. If the cows inhale vitiated air, their milk cannot fail to have a bad taste.

Should we then make up our minds to export no more winter-butter? I reply: No! The Danes, under the same conditions, succeed, why should not we? They have been working away at this question for 62 years; before that date they were worse off than we. If they have reached perfection in 62 years, we, learning from their experience, may succeed in attaining the same result in a far less period.

MOTION proposed by Mr. Barnard, seconded by MM. l'abbé Charest and Wm. Tremblay:

"Seeing that the report of M. Leclair, Manager of the St. Hyacinthe Dairy-School, on the defects he noticed in the hundred creameries he has visited, and seeing that this report has met with the approbation of the representative of the Montreal trade, the Association advises the Government of the province of Quebec to be good enough to appoint inspector to carefully overhaul all the factories in the province with the closest scrutiny.—(Carried unanimouly).

Session of Thursday afternoon.

LECTURE BY M. J. C. CHAPAIS,

Assistant Dominion Commissioner of Dairying.

MEADOWS AND PASTURES.

Mr. President and Gentlemen,

Invited to have the honor of addressing so distinguished an audience as the one I see before me, I felt it my duty to attack a subject of the greatest importance to our Canadian farmers, that of "Meadows and Pastures." For indeed, in our province that is devoted on so large a scale to the dairy-industry, it is impossible to conceive of establishing on our farms a well-considered rotation, without introducing into it, as a large part of the series, meadow and pasture.

I shall divide my lecture into two distinct parts: the one will treat of temporary meadows and pastures, the second to natural and permanent meadows and pastures.

FIRST PART.

TEMPORARY MEADOWS AND PASTURES.

SUMMARY.—*Soils suited to the formation of meadows.—Necessity of a system of rotation for the establishment of meadows and pastures.—Some notes on grass-seeds.—Mixtures of seeds for meadows and pastures.—Selection of seeds.—Sowing.—Care to be given to the meadow.—Care to be given to the pasture.*

Soils suited to the formation of meadows.—Among the varied soils of which arable land is composed, there are four principal ones. These four are: argillaceous (clay) soils; calcareous (lime) soils; silicious or sandy soils; and turfy or boggy soils. Now, in every rotation, well conceived and well applied, these four soils are well fitted to form artificial meadows or pastures, as soon as they are qualified for the operations of the plough. They, of course, must undergo treatments, differing according to their nature, before they are converted into meadows. Thus soils of a turfy or boggy nature are generally cold, acid, damp, and though they contain great quantities of nitrogen, it is not in a condition available for plant-food. They must, first of all, be drained; then, their acidity must be modified by lime, which is the best agent for that purpose. An application of ten to fourteen bushels to the *arpent* (about 12 to 16 to the imperial acre), placed in small heaps covered with earth, in autumn, on the ploughed land, and then, in the spring, spread and well harrowed, will produce the desired effect, and will last for some ten years or so. Silicious or sandy soils are improved by the addition of clay, put in small heaps on the land in autumn. The frost pulverizes it, and makes it easy to spread in spring just before ploughing. Should the silicious soils be very poor red, or inclining to white, sands, they need humus, and in that case bog-earth will prove a capital 'mendment. (1) Calcareous land, very scarce in this province, may, in spite of its character, not possess lime enough in an assimilable state; in that case, lime must be added, as above. They are improved by the addition of humus, of which they are usually nearly destitute, in the form of bog-earth, and by growing on them green-crops to be ploughed in. These constitute green manures, and this is about the best treatment that can be given to these soils. Heavy, argillaceous land must be treated to sand and bog-earth. Green-crops, for ploughing in, are grown to promote the divisibility of the land, thereby destroying its too great stubborness. It is ploughed by subsoiling or trenching, to deepen and pulverize the space that the roots of the leguminosa are to occupy. Most of these soils also require lime.

Necessity of a system of rotation for the forming of meadows and pastures.—The 'mendments, of which I spoke above, are applied generally to the different soils, in the first limb of the rotation, which is supposed to begin on land in stubble, ploughed in autumn. On this furrow are applied the lime, clay, etc., according to the needs

(1) *Amendement* is, all but the first letter, the word Englishmen apply to all dressings that are neither dung nor chemical manures, such as lime, clay, bog-earth turf, etc. A. R. J. F.

MIL—*Phleum pratense*—Timothy

of the soil. A rotation is required in every system of good farming to obtain the various crops it is meant to yield ; but it seems to be still more requisite for the formation of meadows and pastures. For in fact, land that is intended to be laid down in meadow must be *'mended, drained, worked, cleaned, and manured.*

We have just seen what is meant by *'mendments.* The other qualifications needed by the land are obtained by the rotation. This, which may vary in many ways, must invariably include a year of hoed-crops, which usually occurs in the second year, the *break* having, the first year, after the first ploughing on which the 'mendments were applied, borne a crop of grain. The root-crop, in the second year, enables the farmer to bring the land into regular trim. First, the drainage must be done, as the first operation in cultivation, for, otherwise, the soaked soil would bear nothing, and would receive no benefit from the application of the 'mendments. To grow a good root-crop, a deep furrow is necessary, and where the subsoil is hard it should be subsoiled ; next, a grubbing with the cultivator or drags, and thorough harrowing. A full dressing of dung comes next. Then, plenty of hoeings to kill the weeds and to keep the soil moist and the surface pulverized. Nothing can excel this growing of roots for cleaning and working the land, and it ought invariably to precede the laying down of land in grass.

The immediate preparation of the land for laying down to grass—When, in the course of the rotation, the break is to be laid down to grass, it must first have a good autumn furrow, after the root-crop is harvested ; if the land is light, nothing but simple stubble-cleaning need be done, to kill the insect-pests, such as maggots, cut-worms, etc., and the ploughing is to be done in the spring. But before this furrow, all largish stones, bush-stubs, must be cleared off, the rails, post-butts, that might encumber the field, must be taken off, so that, when the time comes to use the mower, it may meet with no obstacles. The ridges or lands should be, where possible, made wide and well rounded, with the furrows between them well cleared out to allow the escape of the water. This will make the work of the mower much more easy, and in wet seasons, the grass will grow much more equally on wide ridges, well rounded up, than on narrow ridges, which multiply furrows in which the grass is never so strong, and which make the work of man and horse much harder, to say nothing about the wear and tear of the machine. Here, on the ploughed land, may be applied the chemical manures, especially superphosphate, at the rate, when the previous root crop was fairly manured, of 300 lbs. to the *arpent.* It may be affirmed without fear that a surplus of a ton of hay to the *arpent* may be expected from this dressing, and this certainly deserves the attention of all those who aim at the best results.

A few remarks on grass-seeds.—Before speaking of the sowing of grass-seeds, I will say a few words about the proper seeds for meadows. Here is a list of those that are generally offered for sale by seedsmen, and which ought, at least some of them, to be employed more than they usually are in the mixtures sown for laying down land to grass. As most of these are only known, most frequently, by their

IVRAIE VIVACE—*Lolium perenne*— Perennial Rye Grass

common French name, and some even by their English name, I append a small table, giving with their botanical name in French and Latin, both their French and English common, or vulgar names. I also add the weight of a bushel of each variety, the number of seeds contained in a pound of each kind, as well as the percentage of seeds that may be expected to grow, if the seed is of the best quality. This latter point is important, for if it happens, especially when seeds of new varieties are in use, that one only finds that one-half of the seeds germinate, as is the case with orchard-grass, one is apt to think that the seedsman is a rogue.

In naming the different grasses in the table, I do not mean to say that they have in all cases the same value. Some of them answer best for meadows, others for pastures, and others again only appear in the table because they appear in the lists of the seedsmen, although are not really worth much. Such are the "Sweet-scented vernal grass," and the "Meadow soft grass." Even Pacey's perennial rye-grass, so highly valued, and properly so, in Europe and the United-States, hardly succeeds in this province, except in the Montreal district. Many repeated trials, with mixtures containing this seed at the rate of ten pounds to the arpent, have only shown me a few stems of this plant, while of foxtail, the fescues, and especially of the orchard-grass, there was an abundance.

Red-top, orchard-grass, the rough meadow-grass, June-grass, timothy, alsike and white clover, do well on almost all kinds of soils.

Meadow fescue, the red clovers, and foxtail, prefer rich moist land.

Orchard grass and broad-clover, are best for pastures. All the others mentioned an suited to both pastures and meadows.

Blue joint-grass and the rush are exceptions to this rule, since they are plants belonging to natural permanent-meadows.

Mixtures of seeds for meadows and pastures.—In the seedsmen's catalogues, and in the books of different authors, many mixtures of grass-seeds, varying in quantities and weights, are to be found. The chief defect in these recipes is that the seeds of plants valueless for fodder are often introduced into them. After having tried many, I ended by putting aside certain varieties of seeds that I considered useless, either because they were not suited to the climate, or they did not yield enough to compensate for their cost. I at last stood by the following mixture, which can be varied according to the soil. It has been used by many farmers in this province, and has always answered.

DACTYLE PELOTONNÉ—*Dactylis glomerata*—Orchard Grass

Botanical name · French.	Botanical name ; Latin.	Common name ; French.	Common name ; Eng.	Weight per bushel	Number of grains in a lb.	Percentage of grains that germinate.
Agrostide commune	Agrostis vulgaris.	Franc-foin	Red top—Dew grass	13 lbs	2 000,000	72
Calamagrostide du Canada	Calamagrostis Canadensis	Herbe à lien—Foin-bleu	Blue joint grass	—	—	—
Dactyle pelotonné	Dactylis glomerata	Foin rude	Orchard grass	14 "	335,000	52
Fétuque des prés	Festuca pratensis	Fétuque élevée	Meadow fescue	15 "	336,000	71
Flouve odorante	Anthoxantum odoratum	Flouve des Bressants	Sweet scented vernal grass	10 "	924,000	26
Houque laineuse	Holcus lanatus	Blanchard velouté	Meadow soft grass	7 "	1,304,000	40
Ivraie vivace de Pacey	Lolium perenne Paceyanum	Ray-grass de Pacey	Pacey's Perennial Rye-grass	24 "	213,000	71
Jonc bulbeux	Juncus bulbosus	Rouche	Rush	—	—	—
Paturin commun	Poa trivialis	——	Rough meadow grass	14 "	1,575,000	45
Paturin des prés	Poa pratensis	——	June grass	13 "	1,264 000	48
Phléole des prés	Phleum pratense	Mil, Marsette	Timothy	45 "	1,120,000	85
Trèfle de Suède	Trifolium hybridum	Trèfle alsique — Trèfle hybride	Alsike clover	60 "	250,000	73
Trèfle rampant	Trifolium repens	Trèfle blanc	White Dutch clover	60 "	603,000	72
Trèfle des prés	Trifolium pratense	Petit trèfle rouge, Trèfle rouge bis-annuel, Trèfle rouge commun, Trèfle rouge du Haut-Canada.	Broad clover, Common red clover, Meadow trefoil, Western clover.	60 "	307,000	88
Trèfle des prés vivace	Trifolium pratense perenne	Grand trèfle rouge, Trèfle de Rawdon, Trèfle du Vermont, Trèfle rouge vivace.	Cow grass, Large late clover, Large red clover Mammoth clover, Peavine clover, Red perennial clover, sapling clover.	60 "	300,000	88
Vulpin des prés	Alopecurus pratensis	Vulpine	Meadow foxtail	7 "	269,000	27

FÉTUQUE ÉLEVÉE—*Festuca elatior*—Meadow Fescue

Names of plants.	Light land.	Loam land.	Heavy land.
Red top	3 lbs.	5 lbs.	5 lbs.
Orchard grass	6 "	8 "	8 "
Meadow fescue	3 "	4 "	4 "
Rough meadow grass	4 "	1 "	2 "
June grass	5 "	2 "	2 "
Timothy	5 "	6 "	6 "
Alsike clover	2 "	2 "	2 "
White clover	1 "	1 "	1 "
Red perennial	4 "	4 "	3 "
Foxtail	1 "	1 "	1 "
Total per arpent	34 "	34 "	34 "

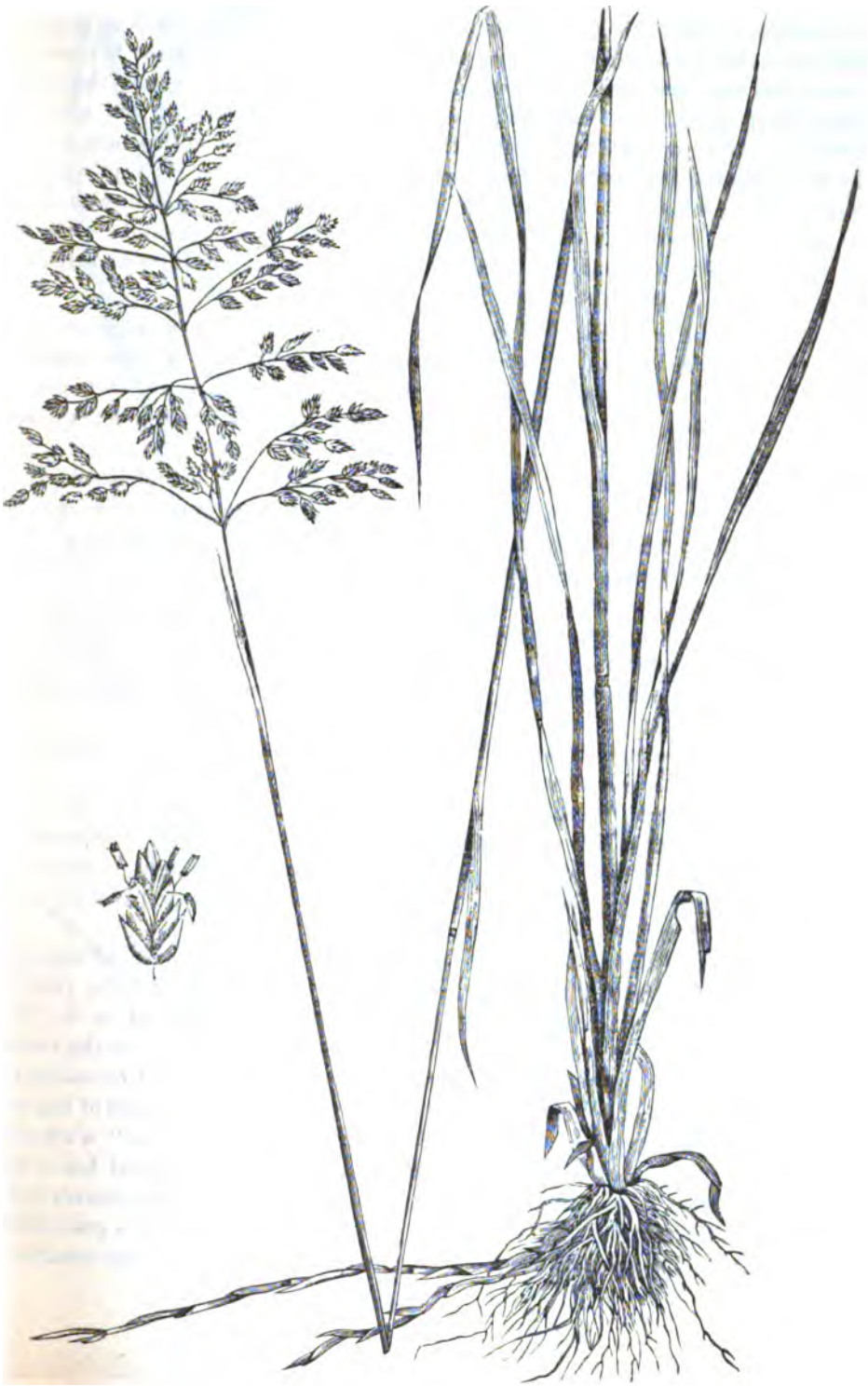
As too those who persist in following the old practice of only sowing, for meadows and pastures, timothy and clover, I advise them to sow, if they wish for the best crops :

Timothy	15 lbs.
Alsike clover	3 "
White "	1 "
Great red or mammoth	7 "
Total per arpent	26 lbs.

For *temporary* pasture, a good combination is the following. I shall return to the mixtures for *permanent* pastures, when I treat of them specially further on:

Orchard grass	8 lbs.
Alsike clover	3 "
White clover	1 "
Red (common) clover	7 "
Total per arpent	19 lbs.

Selection of seeds.—In whatsoever manner we get our seeds, whether we buy them or grow them, there are three points that must be strictly attended to ; they are these: they must be from a suitable soil ; they must be sound if they are to germinate well ; and perfectly free from mixed seeds. A word on each of these points: seed is from good soil when it has been grown on newly cleared land, or on rich, cool land, that produces heavy crops of well grown fodder. In this, Horace's expression : " *Fortes creantur fortibus et bonis* ", strong and upright men spring from the strong and upright, is true in this as in all other things. The seed germinates well, when it is fresh and well harvested. It too often happens that the seed is old. In the case of clover this is easy of detection, as old clover-seed is of a dull colour ; the trade, though, renew its brillancy by oiling it, but this fraud is easily found out



PATURIN DES PRÉS—*Poa pratensis*—Kentucky Blue Grass

by putting a little of the seed into boiling water; if it has been oiled, a slight film will rise to the surface of the water. Again, the seed may have been harvested before it was ripe, and then the germinating power will be weak. Only the lens, or magnifying glass, can detect this fault: the seed unripe when cut, will have wrinkles on it like an unripe pea. Lastly, the percentage of germination may be found by putting a hundred seeds between two pieces of flannel, to be kept warm and moist. We saw above the proper proportion of seeds of the first quality that ought to germinate. As for the cleanliness of the seed, its importance can be easily seen, as it is distressing to think of a farmer sowing the seeds of weeds, from carelessness or stinginess in buying cheap, bad, ill-dressed seed.

All that I have been saying about the care to be taken in the selection of seed shows how infamously bad is the practice of some farmers who take the rubbish at the bottom of their hay-lofts to sow their meadows with. They are certain to sow a great proportion of weed-seeds, if they sow those seeds that are commonly called "fleur de foin."

Sowing.—Grass-seeds are usually sown here in spring, and almost invariably with a grain-crop, that is, the grain is sown first, and the grass-seed immediately after it. The clovers and timothy should be sown together, and the long, lighter seed, like orchard-grass, afterwards by themselves. The Cahoon broad-cast machine does its work well, except in wind, when it does not deposit the seed regularly; in case of wind, "Thompson's wheel-barrow seed-sower," made at Ypsilanti, Michigan, is better. It sows a space 16 feet wide, and is so arranged that, driven fast or slow, it always sows the same quantity, and the wind does not affect its regularity of deposition.

Grass-seed, too, may be sown in the fall, but I cannot recommend this for the Eastern part of the province.

Grass-seeds should be sown as early in the spring as it is possible to get them in, and when sown, must only have a light harrowing and a rolling. Frequently the seed does not take, either because it was sown too late, in a drought, or because the harrow has buried it too deeply, or because, in an imperfectly prepared and unpulverized piece of land, the rolling has been omitted.

Treatment of the meadow.—When once sown, no cattle must be allowed to pasture on it the first fall, nor in the subsequent springs and falls. The yield of a meadow is often reduced by a third, from cattle being allowed on it. If the thaws of winter, frost succeeding, have caused a formation of ice on the meadow, the spots where the ice has drawn out the roots of the grass must be watched for, and when found must be well harrowed and dressed with a compost of bog-earth, superphosphate or some complete chemical manure, like the "Victor"; a lot of seed, of the same kind as before, should be sown previously, and a good heavy ruller completes the job, as soon as the land is dry enough to support the horses without their hooves poaching it. After the third year's hay-crop is carried, a good dressing of well rotted dung should be laid on. If weeds threaten to invade the meadow, the

AGROSTIS VULGAIRE—*Agrostis vulgaris*—Red Top.

first that show their heads must be pitilessly eradicated as must be the others as well.

Treatment of the pasture.—Besides the treatment, above described, for the meadow, and which applies equally to the pasture, except the top-dressing of dung, the pasture is to be divided into several small enclosures to be grazed one after another by the stock. Every time the animals are removed from one piece, after grazing it for a fortnight or so, the droppings of the stock must be knocked about, and that for two reasons : first, because the dung being spread abroad manures the land, instead of burning up the grass where it lay, and, secondly, because by breaking up the droppings, the hatching of thousands of the eggs of the *horn-fly*, which are always laid in the cow dung, is prevented.

It now remains for me to speak of *permanent* meadows and pastures.

SECOND PART.

PERMANENT MEADOWS AND PASTURES.

SUMMARY.—*Permanent natural meadows.—Composition, management, and treatment of permanent meadows on the strand ; of permanent meadows on the flats (platins) of lakes and rivers.—Artificial permanent meadows.—Seeding down of permanent artificial meadows.*

Natural permanent meadows.—In the province of Quebec, there are two kinds of natural permanent meadows. The *strand* of the St. Lawrence, in some places, constitutes natural meadows that are very productive, good instances of which occur in the bays of St. Thomas, l'Islet, Ste. Anne, Kamouraska, Sherbrooke, etc., and the flats of the isles *aux Grues, aux Oies*, etc., in the eastern part of the province, as also, at Varennes, Baie du Febvre, Ste. Anne la Pérade, etc., in the west. The valleys of many of our principal rivers and the banks of some of our lakes, also furnish us with a great extent of natural permanent meadows, in places where the low flat banks extend in what are called " platins," i. e., *flats*. These flats and strands are submerged by water, the strands, from Three-Rivers downwards, at each of the high tides that exert their influence twice a month on the St. Lawrence ; the flats, in spring and fall, in the flood-time.

Composition, management, and treatment of the permanent meadows, on the strands.—Two kinds of plants grow more especially in the meadows on the strand of the St. Lawrence. They are : the Blue joint-grass, and the Rush. The former is use to tie up sheaves of grains, bundles of hay, etc. ; hence its trivial or vulgar name, in French, of *herbe-à-liens*. It is also called, *herbe-à-couvrir*, from its use as a thatch for barns, etc. ; still sometimes to be seen in some parts of the province. These plants are greatly esteemed by stock, particularly by cattle, and make very nutritious hay. The rush especially is acknowledged to possess the property of

VULPIN DES PRÉS—*Alopecurus pratensis*—Meadow Foxtail.

making cows yield lots of milk. And so much so, that, very often, farmers that have no strand meadows and who live, near those who have, change with them their common for the strand meadow-hay. Unfortunately, in districts where the river is salt, i. e., from St. Roch des Aulnaies, l'Islet, below Quebec, this grass, often drenched, in high tides, by the salt water, retains a good deal of salt, and if it is browsed by cows in summer, or consumed by them as hay in winter, the milk they yield is briny, even very salt, in flavor. In this part of the province, then, cows giving milk must not be fed upon this grass either in summer or winter.

One detail connected with this kind of grass is, that it must not be cut til late in the fall. If cut before the seed is ripe, the yield is at once diminished in the succeeding crops, and if the practice of early cutting is continued, the meadows will eventually become perfectly bare. And there is nothing to prevent this hay from ripening all standing, since, unlike ordinary fodder-plants, it never grows hard with age, but preserves its verdure till late in the autumn.

It happens sometimes that these meadows are torn up by masses of ice carried by storms, and which, thrown violently on the banks, plough up the land and destroy the grass over great extents of ground. When this arrives, the land must first be levelled, and those parts of the shore that have not been injured must be left untouched, by cattle or scythe, for two or three years. The grass will then seed itself down and the damage be thus repaired.

Composition, utilisation, and management of permanent meadows on the flats of rivers and lakes.—The natural meadows that are to be found on the flats of rivers and lakes are composed chiefly of plants such as I described in speaking of temporary meadows, and they should be so treated, i. e., the hay should be cut in flower, and they ought to be harrowed and levelled in spring, if the floods have disturbed the surface; afterwards, a heavy rolling, to level the turf anew, will be useful and will, in addition, compressed the roots that the water may have raised and left bare. Should the ice have destroyed the herbage over large spaces, the land must be ploughed up, sown with a grain-crop, after being well harrowed and levelled, and then sown with a mixture of the seeds of those plants that previously used to grow there spontaneously.

Manure is very rarely needed by meadows on the flats and banks of rivers and lakes. The mud deposited by the periodical inundations is sufficient to maintain indefinitely the fertility of the soil. The only thing to be done, if after some years the turf on the flats has become to thick and no longer yields well, is to break up the meadow, and to grow a grain-crop, sowing down, the second year, with the above mentioned grasses.

Permanent artificial meadows.—Can permanent artificial meadows be laid down in this province? To this question, I reply: Yes. But if the solitary word, "generally", be added, I must answer: No. Instances, few in number though, show that on some alluvial soils, very rich in humus, on a blue clay subsoil, containing plenty of lime, and thoroughly drained, meadows giving from 250 to 300 bundles

FLOUVE ODORANTE—*Anthoxanthum odoratum*—Sweet Vernal.

of hay a year may be kept up for 20 or 30 years. But these soils are rarely to be met with, for, besides the numerous other qualities needed to constitute permanent meadows, they must possess another without which all the others are useless: they must be so situated that they retain their blanket of snow throughout the great thaws that sometimes happen in winter.

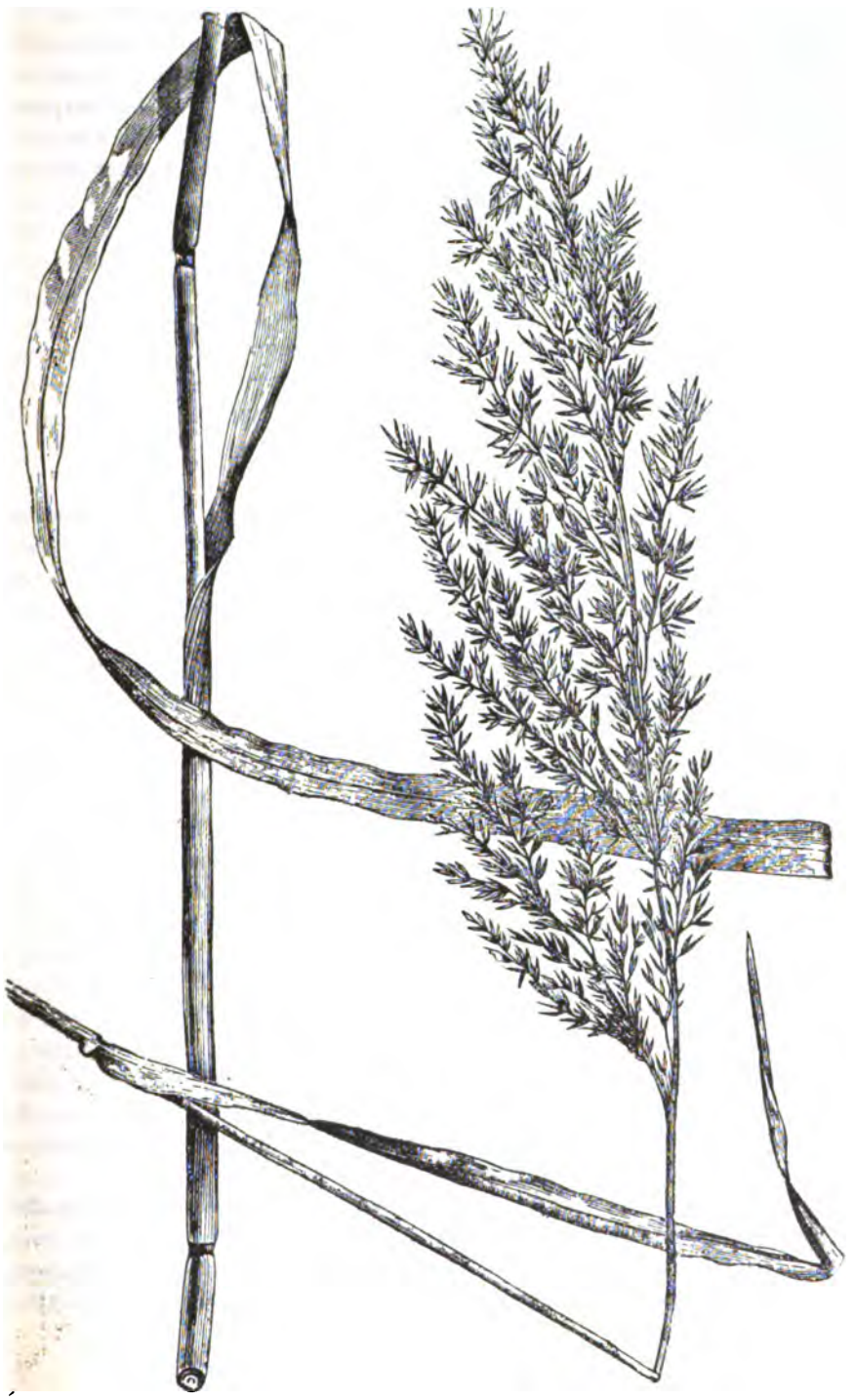
These winter thaws are, in fact, the great stumbling-block that upsets the farmer in his attemps to establish here permanent or temporary meadows or pastures. It was well remarked, when speaking of what is being done in Normandy, that the large quantities of manure and lime applied there to the permanent artificial meadows make the soil warmer, and more able to resist the damage done by the frost. This is very probably so in that country, where the soil only freezes superficially, and that seldom and for only a short time. But, make the soil here as warm as you can, by manure and 'mendments, and I defy any one to heat it up enough to foil the attacks of a frost of -25° to -30° that after a thaw in winter has covered the land with a layer of water that in eight or ten hours is converted into ice stuck to the surface.

Seeding down permanent artificial meadows.—As a guide however to farmers who may have such exceptionally situated land as that I have just spoken of, as being suited to the establishment of permanent meadows, the following is a recipe for grass-seeds suitable for the purpose.

Orchard grass	4 lbs.
Meadow fescue	5 "
Common broad grass	4 "
Meadow grass	4 "
Timothy	4 "
Alsike clover	2 "
White clover	1 "
Red clover	4 "
Meadow foxtail	4 "
Total to the arpent	32 lbs.

The mode of preparing land for a permanent meadow is the same as that practised for a temporary one; except that the liming should be heavier, as well as the dose of manure, and a greater dressing of artificials should be applied just before seeding.. For, it must not be forgotten that land laid down for permanence can only be manured for some time in any other way than by top dressing. As soon as a permanent meadow is laid down, it is to be treated exactly like a temporary one, except as to certain top-dressings of which I shall speak when I am treating of permanent pastures.

Permanent pastures.—All hilly soils, that cannot be ploughed, should be in permanent pasture; as well as rocky land, where stone-clearing is impossible or too



CALAMAGROSTIS DU CANADA—*Calamagrostis Canadensis*—Blue Joint.

costly, and all land that, for some reason or another, cannot be worked. The settlers in mountainous districts, such as are many townships in this province, on the slopes of the Laurentians and the Alleghanies, are the most in a position to convert all these declivities, recently cleared, into permanent pastures. For that purpose, it is only necessary to attack the soil at once, before "stumping," after the first grubbing (with the mattock), when the ashes are most abundant, by sowing the proper pasture-grasses, in the following proportions :

Orchard-grass	6 lbs.
Meadow-fescue	6 "
Rough-stalked meadow	8 "
Timothy	6 "
White clover	3 "
Red clover (small)	3 "
Total	32 lbs.

With the exception of timothy and the small red clover, all the grasses in the list are very persistent. The two former give a great deal of fodder during the first, two or three years, and then the others, that have taken a little more time to instale themselves, are ready to furnish an abundant yield, when the timothy and the clover are pretty nearly worn out. Some recommend that the pasture should not be fed off the first season, so that the herbage may get well established. The best way of burying the grass-seed is to drive a bullock drawing a bush-harrow between the stumps.

As to rocky or other unploughable soils intended for permanent pasture, some advise the application to them of a compost prepared a year in advance in this fashion : plough a strip of grass-sod, and carry the turf off into the corner of the field ; on a layer of this place a layer of quick-lime, then another layer of turf, followed by a layer of dung, and another of lime, with, last of all, a layer of turf to top up with ; the heap should be five or six feet high. The compost should be cut down and turned two or three times in the fall, well mixed in the turning, and allowed to pass the winter in that state. When spring arrives, it is to be spread on the land intended for the pasture. The land is to be grubbed, or dug with a fork, breaking all the clods thoroughly and mixing in the compost. Then the grass-seeds are sown and dragged in with the bush-harrow. The compost should be made of $\frac{3}{4}$ of earth, and $\frac{1}{4}$ of dung, with 600 lbs. of lime for an arpent of land. Such a compost should be given to meadows and pastures at least every four years, and it is by this alone that their permanence can be secured.

Now, you will doubtless be surprise to hear of the composting of dung and lime together, for it is contrary to all theoretical ideas of the management of composts into which dung is combined. Still, the recipe must be taken as it is given, for Barral, Boitel, Gayot, Gobin, and other agronomes of France, recognize the good

effects of composts thus compounded. When this is spread on well established meadows or pastures, it is done at the end of August in the year after it is made.

Care must be taken, in both permanent and temporary pastures, to mow all the tufts of grass that the cattle have left uneaten, to prevent them from ripening their seed, thus exhausting the soil. In other respects, they are to be treated entirely like temporary pastures.

Lastly, as the remaining detail to be noted in the management of all kinds of pastures and meadows, I must advise the eradication of all weeds as soon as they show themselves. If this is thoroughly done, in the proper season, and clean seed has been used, on well cleaned land, the piece will not be invaded by injurious plants. It need not be said that land laid down to permanent grass is never made part of a rotation.

From all I have said about permanent meadows and pastures, it may be thought that I consider it an easy thing to secure the permanency of grass in this province. If, in consequence, any farmers try to put in practice the plans I have been pointing out, and fail in their object, they will feel inclined to blame me, and to assert that I have misled them. Foreseeing this, I repeat here in conclusion that, in our province, the great obstacle to the establishment of permanent grass is the action of the frequent extensive thaws of our winter, which often leave the land covered with water. If at that time a very heavy frost occurs, covering the land with a sheet of ice glued to the soil, enormous injury will be done to the roots of the plants.

LECTURE OF M. L'ABBÉ TH. S. PROVOST,

Agricultural Missioner.

THE POLITICAL ECONOMY OF AGRICULTURE.

SUMMARY.—*Rural economy.—Of capital.—The extent of the farm.—Should be in proportion to one's means.—Concentration of labor.—Cropping.—Intensive farming.—Extensive farming.—Routine.—Economical management.—Courage in business.—Instruction in agriculture.—Education.—Judgment.—Love of progress.—Nature a great agricultural university.—Utility of knowledge.—Its importance in Agriculture.—A good prospect.*

Mr. President and Gentlemen,

I fancy you hardly expected to hear me treat of such a matter as that on which I intend to address you for a few minutes. Were it an adventurous expedition into distant lands as yet unknown to the learned, I would say so at once. I would do likewise did it concern a rash and dangerous voyage to unknown regions, over a storm-tost immeasurable sea. But as, far from that, it is the development of an important question that concerns every agricultural society, and which lies at the foundation of all the regulations instituted for the prosperity of the farmer, it is

proper to take some precaution in announcing it, and to keep back to at least the conclusion of a long drawn out sentence, the fact that it is in very truth a subject political in its nature.

I seem to see a quiver of curiosity pass over the lips of this pleasant audience, and to hear the low and anxious question: "Whither he is going with his politics?" —Here, Gentlemen, is the point I aim at, without further preamble. There are politics and politics, as we shall see, or rather as we shall recall to our common memory. In its larger sense, and according to the most general acceptation, politics is the art of governing society by the maintenance or drawing up of just, equitable, wise laws, responding to the multiplied and constantly renewed needs of the various classes who compose it. Do not be alarmed, gentlemen, it is not that of which I am about to speak. There is another kind of politics, one that is peculiar to each position, each class, each association of citizens. And that kind is the art of wisely directing the effort of each individual toward the highest summit of desirable progress, and to open to each the prospect of a happy future. So, in farming, as in every other business, there is a kind of politics to pursue, one founded in the laws of science and of prudence, whose strict observance will ensure success. It is on this sort of politics, then, that I am about to address you, and as it naturally includes the hunt after the best things to be collected and the most profitable way of consuming them, it derives from these very operations the name that befits it so well, i e., "The Political Economy of agriculture, or Rural Economy."

Let us than, in speaking of political economy, select that specifically belonging to the art of agriculture. Let us study its principles, and make certain applications of them that may not be, perhaps, without some public utility.

I am very anxious to impress upon the farmer that it is not necessary to start with a large capital to be assured of a good prospect of success. Agriculture, in this respect, differs from trade. In manufactures, the amount of the profits results immediately from the amount of invested capital, and as this is increased, so the profits increase correspondingly, provided the business is well managed. Fresh capital, indeed, admits of the increase or improvement of the machinery, without an increase of the staff or buildings, and effects a more economical and rapid employment of the raw material. In such a case, with the active aid of all necessary agents, with the supply of the market arranged for, a prompt return of profits becomes the certain consequence of the investment in a factory of large funds, which increases in proportion to the work done, and I may add, to the division of labor.

For, in the lumber-trade, for instance, let us take the work of a large, well fitted up saw-mill. Every thing that cannot be cut into boards or planks, owing to certains faults, can be converted into small dimension stuff, perhaps, or laths, or shingles, so that every particle of value may be economically extracted from the raw material. From which we conclude that, in this as in other trades, when the capital is increased, not only do the profits also invariably increase, but still more does the proportion of the return of profit on the capital increase.

But in farming, it would appear that the contrary is usually the case. A large capital does not invariably, nor even frequently, secure a proportionate profit, unless an exceptionally wise and prudent management accompanies it. This is easy to prove by a comparison of the profits from a small farm or garden with those of a large farm. When much labor and capital are employed, the profits have a tendency to fall. An acre of land may bring in $50.00, but a hundred acres will not return $5,000 00. With a view to the production of a better crop, one may, if thought advisable, plough twice and harrow thrice : it will answer. Under other circumstances, seeking always to increase profits, one may plough thrice and harrow four times; it will be advantageous, but the labor-bill will be increased, and, in spite of the most earnest attention, you may take it for granted that the profits will not come in in the same proportion. In these exertions there is, doubtless, advantage and profit, but not in proportion to the expenditure in increased labor. Why ? Because skill and knowledge are not increased, because the labor is spread over too large a surface, and, again, because all the needed improvements are not introduced. What then must be done in order that farm-labor may return the best possible products, and properly remunerate the farmer ?... Three principal things must be done ; in these three things lies almost the entire secret of success.

First.—The capital invested in a farm must be proportionate to the physical and intellectual powers of its proprietor, as well as to the daily expenditure required to be made, without danger of losing the original fund. Every farming operation is more secure with a small capital, on a moderate sized farm, than with a large investment on a great extent of land, until, at any rate, a very vast amount of experience has been acquired.

Secondly.—The man, who devotes himself to agriculture, must act with judgment, and employ all his intellectual faculties As soon as he ceases to search for or to employ our modern methods, he is sure to see great difficulties arise, for the causes of the dwindling away of the value of landed property are manifold, and if the farmer is not always on the alert, he will meet with every one of them ; the best he can do then, will not be too much to retain the position already acquired. But, if he desires to advance, if he wishes that his labor should become increasingly profitable, he must adopt all the settled improvements that come within his cognizance. It is thus, and by them, that he will obtain influence and remunerative action over nature that he is master of. While manufacturers can multiply their profits without extra cost, as long as their machinery lasts, the farmer who wishes to stand firm and to obviate all unfavorable events, must employ the latest invented implements and processes of his art. For, to him these are the very principles of life ; there is no other hope of salvation for him and for his family. If he does not intend to wane and fail, he must respond to these demands.

In the third place, and this point merits special attention, agricultural labor must be concentrated, as far as possible, on a limited space. Will not the same amount of labor return more profit on a small farm than on a large one, all other

things being equal, since the former will be better cultivated that the latter? On the other hand, is it not true that, in proportion to the increased extent of his farm, the farmer, not having the same amount of money or time to devote to it, will find the difficulties and the trouble of cultivation increase, in the fact that to make a thorough use of it, he must devote an additional amount of physical and intellectual exertion for which the possible increase of profits will never compensate him? Then, instead of subduing the ground, as he was ordered to do, it is he himself who will be subdued, because he has not employed his labor productively, but, on the contrary, has acted without attending to the advice of a wise economy, as regards the extent and the cultivation of the land that he works or desires to work.

A singular and convincing fact: the concentration of agricultural labor on a proper extent of land, has followed civilisation and the development of agriculture to our own shores, as everywhere else and at every epoch. The natives whom we have displaced, though not very numerous, were nevertheless scattered all over the country, earning their keep chiefly by the chase. Here and there, a few wandering tribes ventured on a little cultivation, and developed, in some degree, the productive powers of the soil in addition to their purely savage mode of life. Then, came the cultivation of grain by the settlers, who raised the same powers another degree. Lastly, in our own day, arrived the special cultivation of vegetables, pulse, and fruit, which, on account of a larger population occupying a small area, naturally necessitates a greater concentration of farm-work. Thus, by degrees, in conformity with these instructive facts, and following in the footsteps of a beneficent progress, the work of the farmer has confined itself, little by little, to an area decreasing more and more in size. The labor diminishes, the profits increase. Let us quote a few figures as an additional illustration.

If we hear that an acre of land has produced $1,000.00 worth of crop, we at once believe that, in consequence of an exceptional expenditure of skill and experience, the profits from that one acre have been at least cent per cent. But if, on the other hand, we hear that these thousand dollars are the product of severe toil on 200 acres, we directly set down the rate of profit at hardly 6 %. Whence, we easily deduce the fact that the centralization of the farmer's labor on a very limited area of his property can create for him an abundant source of real profits, and proportionately increase the value of the property he possesses.

Let the farmer learn then that, if he follows the march of the age and of progress, he may without disquiet divide his large farm among his children, who, to their great benefit, will settle down alongside their parents. Here, is a true piece of economy, a policy bearing safety with it; there, if he so will, is for him a capital that cannot be lost: what better could he wish for?

I know that there are here present men whose farms are situated some on the plains, some on the mountains. The latter may fancy that these principles apply only to the farmers of the St. Lawrence valley; that their own farms must at any rate

be large, and that, in their case, there can be no reason to look for rural economy in the concentration of labor on a limited area of land. As regards some things, pasturage for instance, this may be true. But as far as the mountain-farmer engages in the arable cultivation of the soil, it will always pay him best to work as perfectly as possible the most adaptable portion of his farm, and to let the rest lie. Timber and firewood should be kept standing and only used when wanted, carefully keeping the stock from injuring the trees. From the pastures must be carried off all the brush-wood that destroys sometimes half their value by impeding the good effects of the light and heat; the meadows must be improved to the greatest possible point, and the surroundings of the house benefited by a careful and wise system of cultivation. That is the concentration of labor, that is the road to success. He who follows out this, is indubitably ready to receive all the suggestions of science, all the training of agricultural experience; there is no doubt about his being able to draw from them, at a fitting opportunity, the most valuable advantages. For still ampler confirmation, let us study the case of a farmer on the mountains, who has three fields, each of a fixed acreage, on which the work done is typified by the figures 6, 3, 1. Suppose he has a mower or a harvester ready to go to work. On which of the three fields will it be the most useful? Clearly, on No. 6; for this field is thoroughly drained, the bush is destroyed, the stumps drawn, the very last of the stones carried off, so that the machine can travel all over the field with perfect safety. When he reaches No. 3, he finds many obstacles that have not been removed, so his machine has a good deal of difficulty in working: it runs against a stone; sinks into a hollow; the shocks and friction wear it out, slacken the bolts, worry the driver, and bother the horses. But, when he comes to No. 1, he finds that the machine cannot be used at all, and is therefore useless to him.

And thus will it be with everything the farmer has or does; for instance, the application of manure. Which field offers the most advantanges for its employment? Of course the first; for by the work done on it, the soil has been so thoroughly pulverized that the manures come into contact with every atom of it, and develope the full nutritive power that lies in the arable couch. If vegetables are sown in this deeply ploughed, well worked, manured field, there will be probably an excellent crop. On the second field, where hardly half the proper amount of work was done, the crop will be but small; and on the third, nothing at all. The land, then, on which labor has been concentrated in a rational, thoughtful manner, is the best prepared for every kind of crop, is that which afterwards requires the least labor, and that of the lightest kind, and lastly, is the only one of the three that will pay its proprietor. It is the daily confirmation of a word that fell from above; "He who has, to him shall he given, and he shall have abundance". Let us be filled with these principles, let us strive to make them prevail, and we shall be successful, triumphant.

Unfortunately, there is a too common, a too deeply rooted prejudice, owing to which a crowd of farmers are still unsuccessful in their work, lose for a trifling

extra exertion, a slight sweat, the half of the results they might fairly anticipate from it, nay, hazard sometimes the entire crop from an unpardonable negligence in the preparation and protection of the work. This reason, or rather cause, this obstacle, is the general persistence in an old-fashioned, ruinously, radically bad practice, namely this: a man prefers a large farm to a good farm; ambition reaches after a large acreage rather than after an improved area; a burden too heavy to be borne is bound upon his shoulders. No time then for strict and careful superintendence, good management, economical management of the farm. All the accidents that happen to things abandoned to themselves have to be put up with. Broken fences, damaged crops, tramps, trespassers, bad treatment of the herd, diseases, damages to be paid for all kinds of things. There is a reduction of profits! They are never reckoned. How many implements, how many carts and sleighs, shrink in the sun, swell and give in the rain, break down, are ruined just when they are most wanted, causing a hurtful delay, as unfavorable to the character of the farmer as it is to his property. As before, no notice is taken of these things. Still, all goes to waste, everything vanishes. It is no longer the man who is master of his farm; it is the accidents, perils, damages, to which, by his own negligence, his farm is exposed, that are his masters.

On the stream, then, of agricultural life, the farmer, whom negligence, or want of foresight, seems to overwhelm with work, is always rowing against the current, doing with trouble and loss that which nature, were she treated more skilfully and patiently, would herself do for his benefit. Let him concentrate his labor on a very restricted area, such as economy, properly understood, demands, he will then increase the productiveness of his farm, make it a most powerful yielder, easy to manage, as liberal as it is faithful to its pledges. He will make of it a goose with golden eggs that will in no long a time bring him success and prosperity; always provided that he does not afterwards do as that stupid peasant did, who ripped up his goose, to get at the whole treasure at once, and who in consequence lost it all; he will find what he is searching for, prosperity and contentment. In proportion to the growth of his small capital, he will apply the surplus to the improvement of another portion of his farm, and go on in the same way until the whole has been re-created, and consequently increased in value a hundred-fold. What would the shopkeeper be about were he not to employ his savings in increasing his trade and enlarging his profits; were he afraid to add his net income to the capital originally invested in his enterprise? He might continue to do business, no doubt, but always within the same limits. Would not his life be monotonous, tiresome, of only partial utility to such an indolent, chicken-hearted man! To both, to farmer as well as to tradesman, courage is necessary in their business. And if from to time contrary winds and tides delay his voyage to the shores of wealth, as he is sure of being on a good course and that all his property is fixed, immovable, beyond risk of loss, under an experienced director, he will mock at all the ups and downs of trade, at the torpidity of manufactures, at the cataclysms of the political world. Judicious economy,

enlightened decisions, clear discernment, great energy, ready and practical courage, will have placed him like a light-house at the antipodes of routine and reaction; and this is how the investment of a productive energy will, at the last, return him full dividends.

A great deal is being said, nowadays, about the need of instruction in agriculture to farmers. Great efforts, and even sacrifices in high places, are being deployed to enable them, the most numerous class of society, to obtain all the information that can tend to advance their prosperity; and, no doubt, this is all right. If we are here met in convention to-day, it is for the discussion of the farmer's dearest interests, it is to impart to him a knowledge of the profitable experiments that have been made for his advantage. Beneficent institutions are open at different points in the province to receive the fortunate youths and to educate them to be the useful men of the future on the land. All this is worthy of praise, of the highest approbation. But in spite of all these efforts, and notwithstanding so much good intention has been shown, it is doubtful if such instruction can ever reach all minds in the same degree. Still, there is an education open to every farmer; handy, fruitful, necessary, and very ennobling, and this he must search after and seize upon. It is this:

To conduct and execute the work of the farm with intelligence and in the best possible manner, after having observed facts, studied the capabilities and varied properties of the soils that compose his farm, noted the influence of the seasons, of the temperature and the winds, calculated the facilities or the difficulties of the means of communication with the outside world. To lend an attentive ear to all suggested improvements; to distinguish between those that are useful and those that only appear to be so; to accept everything that is practically beneficial in the data of science concerning methods, crops, implements, fields, manures, stock, so that the whole announces a general condition of beauty, of fertility, and, consequently, of prosperity. There, that is an entire education, that can be acquired by degrees by any one who is not devoid of discernment, and who has some leaning in favor of improving his position. A farm thus managed, and well kept under the direction of a mind both active and sound, is an excellent college, a valuable school, whence may be drawn, with blessed consequences, the steps of an experimental teaching of the greatest value. It will be quoted as of the first rank, and its owner will be noted as a farmer of the highest class. There, too, is, definitively the stage whither will lead the judicious application of the few considerations I have been trying to develop before you on "Rural Economy."

Yes, Gentlemen, and I say it without emphasis, without exaggeration, a grand agricultural university lies everywhere before our eyes, inviting our minds and our hearts to adorn themselves with the truths of science, with the inspirations of nature; nature, that under the divine impulse lays before us her grand and splendid mysteries spread to the very confines of space. There are eyes that see them, minds that have found them, souls that admire them and rise up to their level. To enumerate a few of the marvellous secrets of the infinite power, the investigation

of which has been bequeathed to us, I may specially indicate : Astronomy, that marches in brilliant state above our heads by day as well as by night ; Meteorology, suspended in the atmosphere, following constantly its variations ; Botany, which spreads its flowers and plants on the slopes of our hills as well as over plain and forest ; Agriculture, that deals with the surface of the earth and renders it less rugged and more productive ; Zoology, that teaches the intelligent observer the conformation and habits of the animals that are his servants on this earth, his domain ; and Ichthyology, which makes him acquainted with the various tribes of fishes. Moreover, beneath his feet, but open to his inspection, is Geology, whose indications carry us to a time beyond the deluge, discovering to us at the same time the secrets and marvels of creation.

All these sciences have added cubits to the growth of humanity. In every position in life, in every occupation, they are considered indispensable ; shall it be in agriculture alone that they are considered useless ?

But science, has it not prolonged life, soothed pain, prevented sickness ? Has it not been the star of the sailor, the safe-guard of the traveller ? Has not science thrown over the great water-courses of the world those marvellous bridges that conjoin their banks ? Is it not she that directs, without crash or damage, the electric fluid from the sky to the earth, that illumines the night with the splendor of the day, that carries the visual ray to inconceivable distances, and increases to infinity the muscular powers ? Does she not accelerate motion, annihilate distance, facilitate intercommunication ? She has traced in the air the road of thought, and along the same route conducts the spoken word. Science has enabled man to sound the depths of the Ocean, to penetrate the obscurities of the earth, and to sail among the clouds. On iron rails she carries hither and thither innumerable crowds, as rapidly as on the wings of the wind ; interminable trains of travellers traverse whole continents ; and on every sea, float enormous self-acting vessels, careless of wind and tide.

How, Sirs, can an agent of such utility, of such value, be forgotten or ignored in its application to an art like agriculture, to which every other art owes its existence ? And is it not for the purpose of laboring for the application of science to agriculture, for the benefit of the Canadian population of the province of Quebec, that you are here in convention to-day ? Is it not to labor for the full perfection of the great lines of road that can lead our people to the promised land of a secure and smiling future ? For my part, I am fully persuaded that this is the wish of you all, and that is the reason that I congratulate you on this first proof of devotion to the national, the patriotic cause of agriculture, that you are giving in this town of Joliette.

In the present, as well as in past, but by no means as a prophecy be it understood, people judge of the success of a great enterprise when there is a conjunction of several powerful planets, or of extraordinary influences, that announces or accompanies it. What have we not the right now to augur of the future prosperity of agriculture in this country, in this province, in this locality, when we see united,

with the aim, so desirable, of assuring this prosperity, the most influential members of the social body, whose impulse and enlightened views announce infallibly the most splendid results !

I join with all my fellow-citizens, both of town and country, in telling you how highly we are honored and delighted with your presence here seeing, as we do, the good we anticipate from your deliberations and instructive addresses ; and I thank you, Gentlemen, sincerely for the kind attention you have paid to my words.

ADDRESS OF M. J. B. A. RICHARD,

Laureate of the Mérite Agricole.

THE DRYING OF THE SOIL.

SUMMARY.—*The agricultural movement.—Dairying.—Its improvement.—The obstacles to be surmounted.—The lucky and unlucky.—To lessen the number of misfortunes.—Feed cattle better.—Get greater yields.—To guard against the troubles caused by rains, droughts, frosts.—A secret.—Drying the land.—Formerly.—To-day.—The 90 foot ridge or land.—The experiment has been repeated.—On heavy land.—Subsoiling.—The subsoil-plough.—Richard's subsoil-hook (crochet).—Utility of this kind of work to the dairy-industry.*

MR. PRESIDENT AND GENTLEMEN,

I have certainly neither authority enough nor knowledge enough, to address so distinguished, so crowded a meeting, and I feel that I ought not to darken the brilliancy of this splendid festival. I ought rather to leave this task to those distinguished orators, who do us the honor to visit us to-day ; but, in running such a risk as the assumption of so weighty a responsibility, I must be allowed to say that in shouldering it I have only yielded to the pressing instances of our worthy secretary.

I could have wished to have composed a more careful, more interesting address, but, unfortunately for you, as well as for me, many reasons prevented me ; the chief, and the sole one on which I would lay any stress, is my incapacity for the task. Counting then on your indulgence, I will presume to make the following remarks :

Thanks to the zeal manifested by the highest dignitaries of the church, and by all the priests in the country, by our governments and our most distinguished statesmen, by the most conspicuous members of the liberal professions, of the commercial and banking vocations, thanks, lastly to all who by their position and talents are called upon to direct great movements, great reforms, and who have joined hands in a praiseworthy endeavor to impress a vigourous upward flight on

our agriculture ; thanks, I say to all these, marvellous progress has been realized in our province during the last few years.

And, now, brother farmers, it is our part to respond frankly and freely, to give our aid to those who wish so well to us ; thus, will success be assured. We must in very deed render ourselves worthy of so many efforts, so many sacrifices ; we must show our benefactors that we are not ungrateful, that we know how to recognize the great services they are striving to render to the farmer.

Among the benefits and advantages that these generous men have obtained for us, the first rank is indisputably occupied by the dairy-industry and in the present circumstances of that industry, with its adjuncts, must be the exploitation we are striving to improve. For we must not forget, Gentlemen, in spite of the progress already made, in spite of our agricultural papers, our learned lecturers, our Farmers' Clubs and agricultural societies, our noted agronomes, who are sowing broadcast their wise advice, putting it as far as possible within reach of our apprehension, in spite of all this, the road to be traversed before we reach our object is long, and many an obstacle appears to bar our passage.

One of the most frequent obstacles met with is this : every one complains of the want of proper food for our stock. Unfavorable seasons, disease, grasshoppers, hail, late or premature frosts, low prices for our products, are so many reasons to which our want of success is assigned. Hence, complaints ; sometimes entire discouragement.

Still, in every district are found some farmers who appear more favored, whose crops are more abundant, who sell their goods for higher prices, who are, in fact, *lucky*. So, the entire agricultural class may be divided into two categories : the lucky and the unlucky.

While admitting that the circumstances in which each individual is situated have a great influence on his luck or want of luck ; in my humble opinion I believe it to be possible, with reflection and careful consideration, to lessen considerably the number of misfortunes. Not all, but a great many of the obstacles that are most frequently encountered in our paths, may be got out of the way ; we may produce with greater regularity if not more abundant harvests, at least fair ones, crops that will allow of our giving our stock better and fuller keep, and in that way to profit by the great advantages offered by dairying.

I am not, however, going to insinuate that we can and ought to be invariably successful. No, as I said just now, circumstances have too much to do with that, and I know that for the farmer who is not well off, the slightest accident, the sickness of a draught horse or ox, the breaking of an implement, etc., etc., may sometimes endanger the safety of a crop. I would only seek, with you, to find the fittest means to diminish the risk of failure in our agricultural exploitations.

As I said above, we have plenty of subjects for complaint ; some of them beyond our control, others preventable, or at least reducible to smaller dimensions. In this category, I will enumerate excess of rain, droughts, frosts, etc., etc.

I shall perhaps be told that, to undertake the prevention of accidents that appear to be beyond our control, is to greatly increase the difficulty of my task, which I began by stating was a very difficult one. Well, Gentlemen, I have succeeded, and, when I have told you the secret, you will agree with me that the thing is easier that it appears to be

In spite of my deep convictions, based on an experience of 20 years, I do not feel myself to be entitled to lay down the law positively ; but I do not mind being contradicted ; opposition may bring on a profitable discussion. There can be no circumstances more favorable to the considering and, if found advisable, of condemning as heretical, certain agricultural principles, than a meeting like this of men who, by their theoretical and practical studies, have earned the right to deliver such judgments.

My secret, Gentlemen, is the drying of the soil.

I am the son of a farmer, who was said to be one of the best of his day. I worked with him on his farm till I was 20, and he taught me all he knew about farming. My father had three distinct farms. You will allow me to describe the one on which we lived.

This farm, situated at St. Jacques, Montcalm county, was 90 yards broad by 1800 in depth (1½ arpents x 30). It was divided lengthwise by a fence, and a ditch, called in our parts a middle ditch (*fossé de refente*, or, *de milieu*). Six arpents from the end there was a cross-fence, toward the middle of this piece, six arpents deep, there was a movable fence that was shifted every two years, and here had been grown for some 50 years or more, continuously, potatoes, corn, and a few mangels ; the part of these six arpents nearest the buildings served for a pasture for pigs, calves, and for the cows at night. We usually kept 20 to 24 head of cattle, 4 horses, sheep, pigs, and poultry. These animals made a certain quantity of dung, which was mostly placed under the eaves of the cowhouse, the balance being used to fill up a hollow before the stable door. I learned to skate round this mixen : After seed-time, this dung was carried out, the greater part for potatoes, and the rest was laid down, in heaps of a load each, in that part of the six arpents that served for the cow's night-pasture. In those days, never was a load of dung carted further off than that !

As to the other part of the farm, divided in two, lengthways, by a fence and ditch, one side was kept for two years in pasture, the other was sown to oats. As to drainage, (1) the whole farm was divided into plots of from 1½ to 2 arpents, with a ditch as a termination and a *cheintre* (*sic*) at each side ; and several water-furrows crossed the plots.

The earth from the ditches, which were regularly cleaned out every 7 or 8 years, was left on the ditch-side, and formed all round the plot an embankment 12

(1) *Egoutlement* means surface-work more than the other kind, which in French, as in English, is called *drainage*.—A. R. J. F.

to 15 inches high, and this made the ditches seem deep enough, whereas they were on a level with the centre of the piece, which was in reality a regular basin.

The soil was loam, with a subsoil of stiff clay ; the ploughing was done in the fall, and generally the furrow-depth was 5 or 6 inches ; the frost pulverized this soil superficially and the harrowing was easy enough to do. As I said, oats were sown from one end of the fields to the other, with clover-seed every two years for pasture. My father was prodigal in this respect, sowing as much as 2 lbs. to the arpent ! The roller was an unknown implement, and would have been difficult to work, as the lands or ridges were no more than 6 or 7 feet wide.

After seed-time, the two most respectable old men of the parish went from house to house and collected 15 francs. A high-mass was sung for the benefit of the crops, and tranquillity reigned for the rest of the year.

And I must needs say that, thanks to that good action, Providence sent us far better crops than, after such vile cultivation, we had any right to expect.

Many of you would certainly be surprised, were I to say that this dreary picture ; which is far from being overdrawn ; is the portrait, with a few variations, of a great number of farms in our older parishes.

And yet we dare to grumble at the smallness of our crops ! ! !

Need I draw a comparison between farm-management like this, and the farming of the *lucky ones* in the different parishes ? The variation is sufficient to open the eyes of the blindest, and it is with pleasure I say, that I need not go out of the parish of St. Jacques to establish the difference. I could produce a great number of examples in the same place, on the same style of land even, that would compare advantageously with the finest and best managed farms in the province.

But as I began with the history of my father, you will allow me to finish with my own story.

About 20 years ago, I became the proprietor of about 30 arpents of land, here in Joliette. The soil was a white sand, very fine, 4 to 5 inches in depth, subsoil a ferruginous schist, called here *tufe*, and very hard. It had been left to itself for 4 or 5 years.

A few field mice constituted its *fauna*, and all its *flora* was a few stunted white-birches, 15 to 20 inches high, and a wild blackberry bush or two ; and even they did not thrive, so poor was the soil.

The divisions, as far as regards the ditches, were about the same as those I described before. The load of agricultural knowledge I had received from my father seemed to me to be enough to enable me to manage this small estate. I spread on it 40 to 50 loads of dung to the arpent, and in the fall I ploughed the land 4 inches deep, the tufe preventing my going deeper. In the following spring, I planted tobacco and potatoes : result *nil*. Far from being discouraged, by this want of success, I planted the same crops again, with more dung.

The crop appeared pretty fair when standing, but the yield was very poor. Only 300 lbs. of tobacco instead of 800 to 1,000 lbs. Rather disappointed, I sowed

oats ; the season being favorable, it did well, especially in straw ; for 25 loads only yielded 52 bushels, of 12 to 15 lbs a bushel. (1).

At that time, nitrogen and phosphoric acid was unknown in these parts ; and potash and lime had not come within the purview of the farmer : one was for making glass, the other for mortar, and that was all they knew about them.

Had I known at that time the fertilizing power of these matters and the special needs of the different crops I had so unsuccessfully tried to grow, I should probably have profited by my knowledge and, after having conquered the physical faults of the land, have come to the conclusion that : 1. the complete failure of my first crop of tobacco and potatoes was due to my land being very poor in potash, which both these crops are excessively fond of ; 2. the comparative failure of my second crop arose from the dung, in spite of the large dose applied, not supplying the tobacco and potatoes with the food they required ; and, 3. that the immense yield of straw and the poverty of grain in my oats, in the third year, were due to the fact that though the 100 loads of dung an arpent that had been given to the land had begun to give it nitrogen enough, it was still poor in potash and phosphoric acid.

My crops, my land, had spoken, but I did not understand their language.

I give you these details, in order to show you presently, when dealing with results, that I am one of the *lucky ones*.

My first *piece of luck* was to enter the agricultural society, which gave me the *Journal of Agriculture*.

My second *piece of luck* was to read that publication attentively, and to try to extract as much information as possible from it ; the ideas about the drying of the land by open ditches or by under draining, struck my attention, and I resolved to go to work at once : third *piece of luck*, which I call my secret.

I divided my land through the middle, i. e., into two pieces, one of 7 arpents long, the other of 8, by following a slight depression that gave a fall of nearly $\frac{1}{2}$ a foot to the arpent ; with the horse-shovel and the plough, I sunk, along the dividing line and following the depression, a ditch $4\frac{1}{2}$ deep. Next, I divided each of these pieces into four ridges 90 feet wide each, with water furrows emptying into the collecting ditch ; these furrows, in the lowest part, that is, near the collector, are nearly 4 feet deep, but the sides are so gently inclined that I can plough to their bottom, and cross them with loaded carts anywhere. The ditches at the end of each piece are gone, as have the open furrows. The mowers, reapers, etc., etc., work there most comfortably.

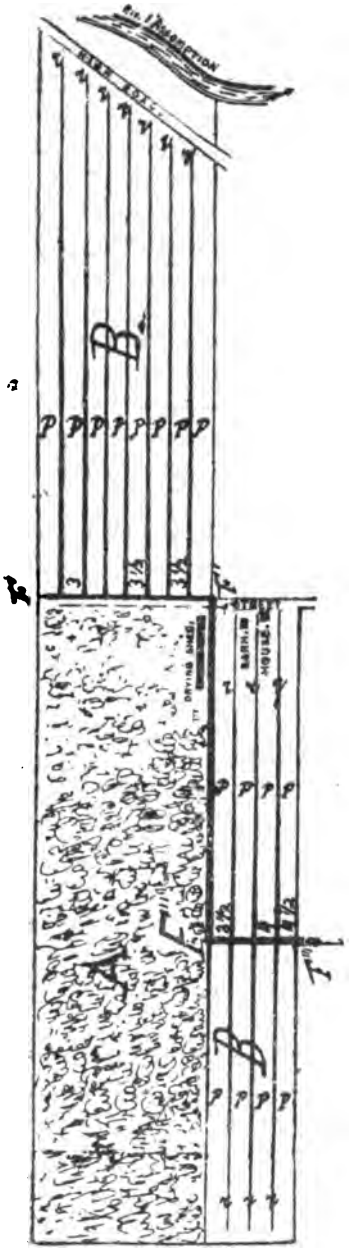
But these advantages are nothing, compared with those I gained in doing the work.

My object was to drain the land thoroughly, at least as well as open ditches can do it. I wanted to get rid of the excess of moisture from the land to a depth of 12 to 15 inches, and to lessen as much as possible the damage done by drought, by

(1) Can this be so ? A. R J. F.

A.—Wood-land.

B. B.—Fields cultivated by 90 ft. rows (see note, page 173).



FARM

OF

J. B. H. RICHARD

JOLIETTE, P. Q.

Scale. 4 Arpents to the inch.

deep cultivation and subsoiling, thereby allowing the roots of the plants to penetrate more deeply, and thus to fetch up food and moisture from below.

And by this same cultivation I aimed at securing, in case of heavy rains, an issue for the superfluity of water, and not to allow it to remain in the upper layer of soil, in immediate contact with the roots, that it soaks too much, thus causing the injuries I had met with in my preceding crops. I also tried, by this ditching and deep cultivation, to facilitate the entrance into the land of air and heat, elements indispensable to the life of plants, thus preventing the damage done by cold and bad weather in spring, which, on badly formed land, delay the seeding, and expose many of the crops grown—especially tobacco—to the early frosts in the fall.

The results obtained surpassed even my hopes; bad seasons are becoming less and less frequent.

If the work of drying land has paid so well on a soil, the subsoil of which is absolutely sterile, what profit could not be made on heavy land with a clay subsoil, full of matters fit for plant-food.

No serious objections can be made to these methods, comparatively new as they are to our young country. Conclusive trials of them have been made, and they have turned out most satisfactorily. I could give a good many instances in Montcalm and other counties, but I will only quote my friend Mr. Chas. Rivet, a farmer and breeder of reputation, who, after having found fault with my plans, subsequently adopted the system. He worked it out on a very heavy soil, drying it by means of very wide ridges and deep water-furrows; the ditches were abolished, as were the cross-water-furrows that cut up his land; he pulverized it deeply. By these means,

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F. F'. F". F"'.—The collecting ditch, into which the water-furrows empty.

r. r. r.—Water-furrows, deeper at the discharge than at the other end. The figures show depth in feet at the discharge.

P. P. P.—Ridges 90 feet wide.

The ditch and water-furrows were made by the *scraper*.

A less costly way would be as follows: divide the field, according to its width and the natural slope, providing for inequalities in the land, if any, into ridges 40, 60, or 90 feet wide, with poles set up where you want to make the furrows; there, make two or three bouts of the plough, turning to the right or gathering (*en endos*); carry off with the scraper the earth thus thrown up, and lay it on the middle of the ridge; this earth should be spread as fast as it is laid down by passing the empty scraper over the heaps.

Making the ridges.—This work is done all over the piece, of course including ditch banks; plough as usual, *gathering* (1) up to the middle of the ridge, and always turning the horses to the right. When the ridges are done, and the "crumb-furrows" ploughed, it would be well to clean out the last with the double mould-board plough, or at least by passing the common plough several times through them; then, the great ridges are formed. By following this plan for several years, the ridges will become high and rounded, the furrows deep, and the thickness of the arable couch increased.

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(1) This I think is the proper technical word for "endosser." A. R. J. F.

he thoroughly destroyed all the weeds; he converted part of the subsoil into food for plentiful crops; he is one, at least, who, as far as I know, never complains of any shortness of keep for his large herd, and who can profit by the numerous advantages that the carrying on of dairying offers him.

The act of subsoiling, become practicable by perfect drainage, and whose effects are, and will always be, a benefit to cultivation in general, is done in a variety of ways. In some parts of Europe, a subsoil-plough – the Brabant—is used, that turns over a furrow from 12 to 15 inches in depth; other less weighty ploughs do the work in the same fashion, but to a less depth. These would not answer here, at least on most farms, as the teams are not able for the work.

Besides, bringing to the surface a lot of subsoil that has never been "weathered," and whose fertilizing constituents need chemical transformation before they are fit for plant-food, would cause the loss of one or more crops, until this transformation took place. I think, indeed, that here we ought to do the work of deep-stirring without bringing the subsoil to the surface, and the subsoiler is perfectly adopted to this purpose. This is a plough without a mould-board, with a long and narrow share, made to follow the common plough in the furrow it has just turned over. It breaks up at the desired depth a layer of soil that can afterwards be brought up by degrees to the surface. It requires two horses and a driver, and I strongly advise all those who can get this implement to do so, for its beneficent effects will comply repay the cost and the labor it demands.

Another implement, whose work is not so thorough or so complete, but which in many cases has been satisfactory in its working, is a plough of my invention. As you know, poverty is ingenious. Not being able to afford a regular subsoil-plough, I had a goose-neck (*crochet*) made, in the shape of a tooth of the "spring-tooth" harrow,—ending in a point 2½ inches wide, and fitted to the plough. A very simple little piece of mechanism enables the ploughman to make it penetrate the ground to the required depth. A pair of good horses can draw it on my land. Any ordinary blacksmith can make and fit up the whole. As you see, it is simple, low-priced, and within the reach of any one. With this implement, it is easy to thoroughly complete the work of making the land dry, to which, as I said before, I attach the greatest importance.

I am, then, convinced, and by my own experience, that work of the kind I have described diminishes labor, assists in the destruction of weeds, and increases the yield of every crop, but especially of hoed-crops and roots, without which dairying cannot thrive.

I should also have a word to say about artificials and especially on farmyard dung, not so much for the purpose of giving information as for obtaining it; manures are so important in farming in general, and especially on such naturally poor land as mine, that I should have liked to be enlightened on these points: the production, preservation, and more particularly the best way to use dung; but I have already taken some useful notes on the subject, and I hope to take still more.

Before closing my address, I beg to put before you my balance sheet for the year 1895 :

BALANCE SHEET OF M. J. B. A. RICHARD FOR THE YEAR 1895.

RECEIPT		EXPENDITURE	
7,600 bundles of hay, at $6.00 ...	456.00	Interest of capital.....	300.00
700 bushels of oat, at 30 cts....	210.00	Wages	318.00
225 " of potatoes, at 35 cts.....	78.75	Taxes, rates, etc.	88.00
30 bushels of corn, at 50 cts...	15.00	Implements and repairs	24.75
21,650 lbs. of tobacco, at 5 cts.....1,082.50		Purchase of manure.....	76.50
		Depreciation on cost of implements.....	50.00
		NET PROFIT *.....	985.00
	$1,842.25		$1,842.25

DISCUSSION.

The Rev. Père Lacasse, O. M. I.—You say the bottom of your water-furrows is 3½ feet below the top of your ridges: how can that be ?

M. Richard.—The ridges are always ploughed turning to the right and gathering up to the middle. (1) It would not always be convenient to do this,

* In adducing, as an example, his accounts for 1895, M. Richard has not by any means tried to pass himself off as a very *lucky man.* He has had better years than that, witness the following report of the judges of Agricultural Merit for 1895 :

On September 20th, 1893, we visited the farm of M. J. B. A. Richard, of Joliette. It contains 140 arpents, of which 90 are under crop, 50 in bush. with a garden 30 x 45 feet. The soil is fine sand and very poor.

For some years, M. Richard carried on his farm in the usual way. but latterly he has taken to tobacco growing on a large scale. The following is the rotation he follows: 1st year, after grass, wheat and oats ; 2nd year, dung ploughed in, tobacco, corn, and potatoes ; 3rd year, the same, dunged, and then 3 years in meadow ; then the rotation is repeated. For tobacco and the other hoed-crops, he ploughs in the dung, and works it in with the disc-harrow, at the rate of 35 to 45 loads an arpent. He manures 6 arpents with clover, sowing the seed at the rate of 6 to 8 pounds an arpent ; this he ploughs in in the fall. Besides 800 loads of dung that he buys in the village, he buys 40 bushels of lime, and ten barrels of plaster ; his tobacco averages 20 to 25 arpents.

Last year, M. Richard realized, from the sale of his tobacco alone, $2,242.00 ; with the other sales, he realized, in all, $2,685.00 ; after deducting all expenses of cultivation, his net profit was $1,705.00.

The division of the farm into fields is well arranged ; the house is in every respect a good one. The farm-buildings are sufficient and kept in good order. The fields are well managed ane free from weeds. There are plenty of agricultural implements, which are well cared for. We saw here a new machine for planting tobacco, which must be of the greatest utility to those who grow that plant on a large scale. It works to such a degree of perfection, that one would think it was endowed with intelligence.

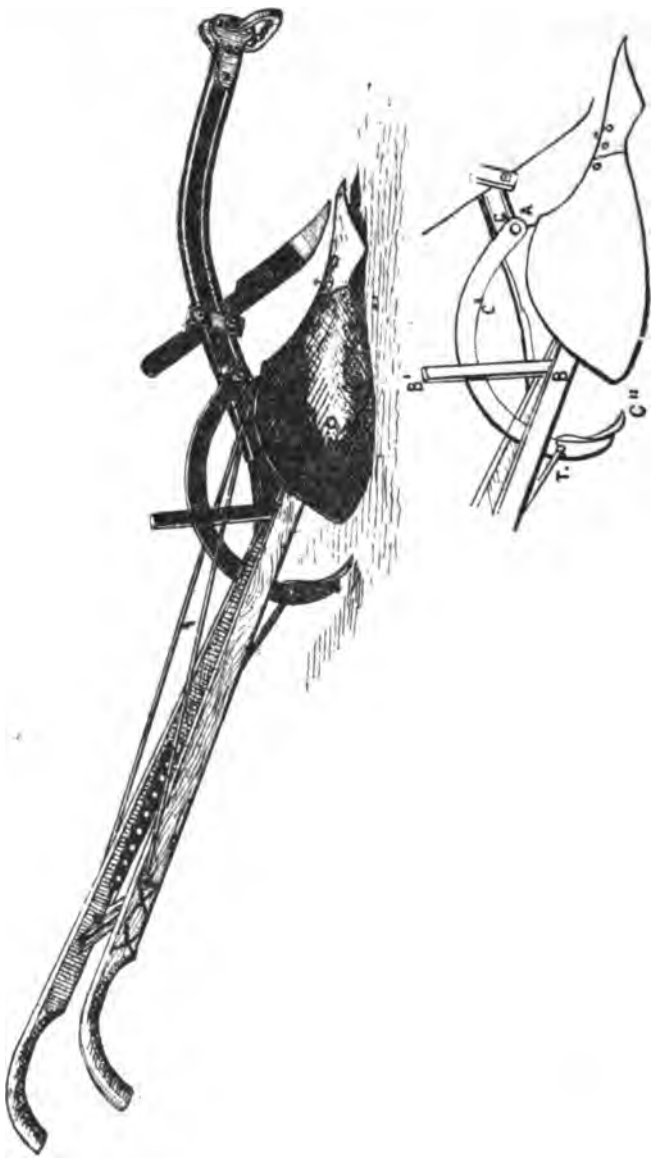
M. Richard has built an excellent drying-house for his tobacco ; it is roomy and well ventilated, and when we saw it there hanging in it 26,000 lbs. of fine tobacco, which he expected to sell at an average price of twelve cts. a pound all round. His crops are very fine ; there are 8 acres in oats, 5 in buckwheat, 1 in potatoes, 1 in silage-corn, 22 in tobacco, 41 in meadow, 60 in bush-pasture, and a garden of 30 x 45 feet.

The stock is Canadian : one brood-mare, 3 plough-horses, two milch cows and a fatting beast, two pigs and 61 head of poultry. We have awarded to M. Richard 85.07 marks, and this entitle him to a silver medal and a diploma of the highest merit."

Note by the Editor.

(1) In Scotch language, the horses are always "*hupped*"; "gathering up" from the flat, makes the "*crown*" the highest part of the ridge.—A. R. J. F.

unless one had improved implements ; one would end by making a hill (côte) on the crown of the ridge I have some ridges that have been ploughed like this, for the



SUBSOIL-HOOK OR GOOSE-NECK.

C. C'. C''.—Richard's subsoil hook.
A.—Pin to fasten the hook to the beam of the plough.
B. B.—Brace, in which the hook is raised or lowered, and kept in place by the regulating, bolt T.

last 15 years, 3 years out of 5. They are still in the same shape that they were when first made.

Mr. Barnard.—This is the best and most practical lecture I ever heard from a

practical man. I was surprised, but not greatly however, at seeing several persons leave the hall during the delivery of this address. I hope they were not farmers, who left: probably they were people of the town.

This practical lecture is most valuable; Mr. Richard is a star of the first magnitude, and will be of the greatest service to his brother-farmers, if they will attend to his advice.

LECTURE BY M. L. T. BRODEUR.

Laureate of Agricultural Merit.

MR. PRESIDENT,

LADIES AND GENTLEMEN,

It is very difficult for me to find any subject that has not been already discussed. When people bring skimmed milk to my factory, I am not pleased, and yet, I see I shall have to serve up to you a subject, the cream of which has already been taken off, since every subject had already been treated before my turn came. I rather fear that you will refuse to accept the lecture the President has asked me to deliver, just as I am in the habit of refusing to accept skimmed milk at my factory.

I listened to Mr. Richard's lecture with much pleasure; his farm I saw this morning; a friend had already spoken to me about his 90 foot ridges, and I at once asked him: "Do you think the plan is a good one?" "Yes, he replied, after the explanations Mr. Richard gave me, I do think so;" and I answered: "As you relate it, it is hardly a wise plan." Now that I have heard Mr. Richard himself, and have seen his farm, I say that the plan is far from being a bad one.

It is not surprising that, at first sight, one is likely to think ill of Mr. Richard's system. Père Lacasse himself was taken in; he thought that the ridges in question were the ordinary ones. I saw Mr. Richard's farm this morning, and I confess that to see it was the chief reason that brought me to Joliette. Well! I was surprised; I should have seen the land better had it not been covered with snow, but I was able to perfectly apprehend Mr. Richard's system, and I think it an admirable one.

I asked him: "Do you think your plan is suited to heavy land?" He told me that a M. Rivet had tried the experiment, and was quite satisfied with it. However, I will not keep on praising Mr. Richard's system any longer; although it may be all very fine, it is not a lesson to be instilled into every one's mind, or that can be brought into practical working at once. I know well that, in farm-work, we must always study economy.

Our means will not allow us to be extravagant, or even to make large outlays. If we wish, as these gentlemen have been preaching to us all the morning, our income to meet our expenditure, economy must be our guide. This new system is

doubtless a good one, but the old one has its good points too, and would produce excellent results if all farmers did their ploughing as well as they know the way to do it. If we, here, could persuade farmers to do their work for the year 1896-97 to the best of their ability, I declare positively that this convention would have been productive of better results than any of the preceding ones.

I am not going to find fault with M. Richard's plan ; on the contrary, I am going to try it on a small scale. I shall take three ridges, each 15 arpents long by ½ an arpent wide. But let experiments go on ; let us proceed steadily ; and while waiting for the result, let us do our regular work as perfectly as we know how to do it.

I heard the Hon. Louis Beaubien on the subject of roads ; he told us that the government was about to let us have fine machines to make our roads practicable ; all right, but on one condition ; it is this : that people begin by showing that they really wish for good roads by doing their best with the tools they have at hand ; then, they might apply to the government for the machines. First of all, their willingness to do the work must be shown. If you have a hole in the middle of your road, it is not the government's machine, placed under a shed, that will fill it up. Every man must help himself.

At St. Jacques, our roads are good, although the soil is heavy and difficult to keep in order. It can be done, but it requires a lot of drains. We use the horse-scraper ; every farmer has to use it for his road. We keep our roads well rounded, in order to let the water run off. Our roads have been greatly improved. There are many farmers who, if they had such roads as ours, would be able to draw their milk two or three miles to the factory. I am not opposed to the government's idea, about the roads, but on the condition that the municipalities shall do their part to profit by the assistance given them in keeping their roads in order. How, on earth, can you believe that a municipality that has never bothered itself about its roads, with the machine it already possesses, will put itself out of the way because it can get a machine from the government ? Believe me, I am not a man to spread error among the people ; I advise those who are about to apply to government for one of these machines to begin by showing their good intentions and, in the mean time, to make the best use of the means they already possess. One thing must be borne in mind : the dress does not always bespeak the man (I was going to say the woman, but I stopped in time) ; but a good farmer is always known by the state of his road : nobody is deceived in this point. When everything round the house is in good order ; when there are no weeds near the fences (I say : a road is good, when not only the roadway (*roulière*) itself is in order, but when the whole space from fence to fence is clear), then it may be said with truth that the owner of that land is a man of good order.

Good roads are most important ; and allow me to tell you that we, country farmers, know a good deal more about roads than townsmen who slip along on the

macadam ; we, I say, suffer greatly from the bad state of the roads, and yet we do not seem to know it.

Generally speaking, the roads are insufficiently drained. I have been asked to give a lecture on draining land. In the first place, I rarely give lectures ; for that I must be " taken short " ; then, you see the subject has been pretty well sifted, and I am glad of it. M. Richard has given us a good lesson on it, and I will not say that my journey has been unfruitful, for I have gained much valuable information.

One must go into the North, if one wants to see such great meetings as this. I am one of the oldest directors of this association, and out of the fifteen meetings we have held, I do not remember, except the Assomption meeting, such a numerous, and I may add attentive, an audience as this.

If roads need draining, still more do farms need it ; it is weary work, but it must be done ; no land can yield well unless it is drained : It is all very well ploughing, sowing, you can only ruin your land ; nothing can grow, and the weeds will gain the mastery.

I remember that, three or four years ago, at St. Germain de Grantham, some of my friends asked me to give them a lecture after mass. A woman then said to me : " You ought to tell them about drains ; I cannot persuade my husband to drain his land. This spring, as I was helping him to harrow his field, I observed some spots where water was stagnating : nothing grew there." You see, this woman argued with her husband, for she saw the importance of drainage. (1) Not but what the husband understood it too, but he knew that it was he who would have to handle the shovel and not his wife.

There are many things one neglects ; not because we do not know, but because we will not do them. Therefore, I said, in beginning, if every one did well that which he knows how to do well, everything would go on better ; and it is for that reason that I said : " We must begin by doing in the best possible manner that which we know how to do, before trying to learn new methods of farming."

As to the manner of draining, you know that leaving the scrapings out of the ditches by the ditch side until a bank 12 or 15 inches high was raised, as Mr. Richard's father used to do, was not likely to lead to any good. You had much better leave off farming altogether, if you imagine your land, under such treatment, is likely to grow anything. If you leave the best earth on your farms, that is the cleaned out stuff from your ditches, on their sides, if you will not drain off the water, you will have but scanty harvests. It would be an unjust act of the Creator, if he allowed any crop to thrive on land thus carelessly treated.

Now, there are some who advise you to grow roots. I have never advised this, for we are not as yet sufficiently advanced to grow roots. Our land is not yet well enough drained, or ploughed deeply enough.

(1) Please observe, again, that *égout* does not refer to under-drainage, but to water-furrows, etc.—A. R. J. F.

If you mean to drain your farm, do not go to work too hastily. Begin by draining one field a year; I do not think you ought to do more than that in a year. Buy an iron horse-scraper and do one field a year; this will cost you about 50cts. an arpent. You will soon find that you had never previously got the water off your land. Your neighbor will come and see it; he will do as you have done, and in five years, you will have five and your neighbor four fields prepared.

When this is done, and your dung is well cared for, there will always be time enough to make other improvements, but begin invariably at the beginning. I do not mean to teach you anything new, but to remind you of things that you have long known to be right but have neglected to put into practice. People will not farm properly; they drain their mixens, but they do not drain their land. They draw a furrow round the mixen, to lead the urine away into the ditch, and thence into the brook, but the land is allowed to get on as it can. The manure should be most carefully collected; not a drop or a particle of it should be wasted. Most farmers, here as elsewhere, let the urine run to waste, and preserve the water that ruins their land. I have been to a great expense to preserve my manure, but it is now clear enough that one may succeed in this for a very little outlay. There is a very cheap way of making a good heap of manure: prepare a flat piece of land for a "stance," and make a trench all round it with a bank outside; on this stance make your mixen, and when it gets dry sprinkle it with the urine that will have leached out of it into the trench. When you cart off the dung, take the three or four inches of earth on which it stood, and when you are about to make a new mixen on the old spot put half a foot or so of earth on it before you begin. After having taken every possible care to preserve every particle of your manure, it will be time enough to talk about using artificials; there are farmers who spend lots of money on them and let lots of their manure go to waste.

It is with farming as with everything else; do not imagine that you can jump at once from the alphabet of agriculture to its philosophy; it would be more hazardous to do this in farming than in any other art; seek first to make the most of what you have before running after things that you have not, and which you must buy from the foreigner.

As one of the oldest directors of this association, I thank you; not in the name of the rest, for they have already done their part; but I thank you in my own name. I thank the meeting for all the pleasure we have received while holding our convention in the fine town of Joliette.

THE QUALITY OF OUR QUEBEC CHEESE.

M. Castel.—Some pessimists, with what intention I do not really know, having tried this summer to persuade the public that, far from improving, the manufacture of Quebec cheese was deteriorating, it seemed to me to be an interesting task to investigate, in the special papers that give the market quotations, the figure our quotations make in 1896, compared with the figure they made in 1893 and even in

1890, by the side of the Ontario quotations, whose cheese is set before us if not as absolute perfection, at least as the model we ought to strive to reach.

I will give you presently, in a table, the result of my researches; it was a more difficult task than I at first thought it would be, for in Quebec we have only one Board of Trade for dairy-products whose prices are published. Ontario has a great many Boards, and it is easy to follow up the quotations for Ontario cheese from the first institution of these Cheese-Boards. I have succeeded, thanks to the kindness of some sellers and of one buyer, to obtain the prices of cheese in the St. Hyacinthe market for this year, together with the published prices of Cowansville (our only Board) and the quotations on the wharf at Montreal. I had (for 1896) three Quebec markets to oppose to Ontario. As all these markets are not held on the same day, except London, Cowansville, and St-Hyacinthe, I have thought it best to interpolate our Quebec quotations among those of Ontario; so, I began by the quotations of Brockville (Thursday) continued with those of London, Cowansville, and Brockville (Saturday), concluding with the Montreal quotations of Monday, and Ingersoll's of Tuesday. It seemed to me that by opposing the average quotations of Quebec cheese to the average quotations of Ontario, on these different markets, I should be giving you a fair idea of the situation.

Ontario...	Brockville	Thursday
	London	Saturday
	Ingersoll	Tuesday
Quebec...	Cowansville	Saturday
	St-Hyacinthe	Saturday
	Montreal	Tuesday

Thursday	Brockville	Ontario...
Saturday	London	"
"	Cowansville	Quebec...
"	St-Hyacinthe	"
Monday	Montreal	"
Tuesday	Ingersoll	Ontario...

It will be observed in the table that the quotation on the Montreal wharf, in 1896, were often higher than those at Ingersoll; nothing surprising in that, you may say, the freight on that cheese is paid; true enough, but so it was in 1893 and 1890, and then the quotations on the wharf were often, not to say regularly, lower than those of Ingersoll.

To find out the difference in favour either of Ontario or Quebec in this table, I have taken the average of prices of both Quebec and Ontario, and carried the balance to the credit of the right province.

QUOTATIONS OF CANADIAN CHEESE.

On the Markets of :	Brockville. Ont.	London. Ont.	Cowansville. Que.	St-Hyacinthe. Que.	Montreal, (quay). Que.	Ingersoll. Ont.	Difference in favour of Ontario.	Difference in favour of Québec.
1890.	"	"	"	"	"	"	"	"
May	"	"	"	"	"	"	"	"
July, from 17th to 22nd.	8½-¼	8½-½	"	"	7½-⅛	8½-1/16	9/16	
" 24th to 29th..	8-8¼	8⅜-⅝	"	"	7⅛-8¼	8⅜-11/16	5/16	
Sept, from 11th to 16th..	9¼-11/16	9⅜-10	"	"	9⅜-¾	9¾-⅞	1/16	
Oct., from 16th to 14th..	10¼-½	"	"	"	9⅜-10	"	8/16	
1893.	"	"	"	"	"	"	"	"
May, from 18th to 23rd.	9¾	9⅜	"	9½	9½-¾	9⅜	"	1/16
" 25th to 30th.	9⅜-½	9¼-11/16	"	"	9¼-⅝	91/16-1/4	1/16	
July, from 13th to 18th..	9-9¼	815/16 9½	"	"	8⅞	91/4	4/16	
" 27th to 2nd Aug	9¼-½	9⅛-⅝	"	"	9⅛-9¼	95/16-⅜	4/16	
Sept., from 2nd to 5th.	9¼-⅜	9⅛-½	"	"	9⅛-¼	9⅜	1/16	
October,	*contract.*	"	"	"	"	"	"	
1896	"	"	"	"	"	"	"	
May, from 14th to 19th.	713/16	6½	6¾ *offer.*	7¼-⅜	71/4-½	61/16-⅞		14/16
" from 21th to 26th.	7¼-⅜	6¼-7/16	"	6½-¾	6¾-⅞	6¼-7/16		1/16
July, from 9th to 14th...	6⅛-7	6⅜-13/16	615/16-7	"	6⅜	6⅛		1/16
" 16th to 21st..	6⅜	6½-¾	6 11/16	6⅜ 13/16	6⅜-7	6⅜-13/16		1/16
Sept., from 12th to 15th	"	8¾-9¼	9-9½	9⅜-9½	9¼-7/16	9 3/16 *offer.*		2/16
" 16th to 21st.	9¼	*no sale.*	9⅜-¼	"	8¾-91/4	9		1/2/16
Oct., from 17th to 20th.	"	10⅛	10-10⅛	"	10⅛-10½	10-10 1/16		1/16

In drawing up these tables, I found that, on October 13th, 1896, the cheese quoted at Chicoutimi (first or second quotation) at $10\frac{1}{16}$ cts., the price at the corresponding Ingersoll market, and yet, many of those here present doubtless had no idea that such a thing was possible. You were, in that, just in the same way of thinking that was the firm of R. and W. Davidson, of Glasgow, from whom I received the following letter. Just *à propos*, for it speaks of Chicoutimi cheese : it is addressed to the National Bank, and the extract I hold in my hand, certified by M. J.-E.-A. Dubuc, Manager of the National Bank, at Chicoutimi, and M. J.-D. Guay, Mayor of that town, shows that the cheese, mentioned in the letter, had been forwarded by MM. Côté, Boivin et Cie, and was " Saguenay " cheese :

Extract from a letter from R. and W. DAVIDSON,

Commission Merchants, Glasgow, London, Bristol, and Liverpool.

" We must acknowledge that we sold part of the cheeses very much too low, on account of our apprehension as to the quality, in consequence of our having fallen into the great error of selling them before having inspected the quality.

" We had an idea that *these cheeses were inferior in quality to those from Canada West*, and we sold 600 boxes before we saw them ourselves."

The manager of the bank adds, in his accompanying letter, that the firm of Davidson had credited the exporters with the sum of $26.91, as compensation for the loss incurred by the firm's fault. So much in favor of Saguenay cheese ; it would seem that the syndicates are doing a good work in the county of Saguenay and Lac St. Jean.

In consulting the preceding table, the members of the Dairymen's Association will remember that it was in 1890 that the syndicate movement began, and that, in 1893, we already had 28 syndicates, one-half of which were only in their first campaign. In 1896, we are not much further in advance as to the number of syndicates existing, but nobody can deny, after having examined the above table, that our cheese has been greatly improved during the last few years ; and this is all we wanted to show.

And this enquiry has also convinced us how important it is that a number of Cheese-boards should be created in this province, where cheese and butter should be sold publicly, and whose quotations published in the papers would at once give us a double result, that is : an announcement in favor of Quebec cheese, if it was found to be equal or superior to Ontario cheese of the same day ; and, in case it should turn out to be inferior, a sanction of the teachings of the Association and of its earnest efforts to secure a general improvement and uniformity of make throughout the province ; for, in the " Cheese-boards," there is generally more difference between good factories and bad ones, than there is in the districts where cheese is sold by private sale ; and from the day when the difference in price that should subsist between good and bad cheese shall be observed, our ignorant or careless makers

will correct their mistake and quickly learn to do better. That is the knotty point, and it must not be overlooked.

DISCUSSION ON BUTTER-MAKING AT HOME.

M. l'abbé Côté.—Could not M. Leclair give us some practical advice on the making of butter at home by those who cannot send their milk to the factory ?

M. Leclair.—There is not much difference between making butter in the farm-dairy and at the creamery. The sole difference is, that, in the farm-dairy, the cream of several skimmings must be mixed together, to make enough to be worth churning. In such a case, the earliest skimming must not be allowed to begin to ferment. The second skimming must be added to it and the whole thoroughly stirred together till the mass is uniform. The fermentation is to be started 24 to 36 hours before churning. The fermentation, or ripening as we call it, the washing of the butter, the churning, and the salting, ought to be all done as carefully as in a creamery. If you fail in following one of these rules, you will have just as bad results as in a creamery. I do not see that any particular rules can be laid down for butter-making at home.

M. l'abbé Côté.—How many hours should be allowed to elapse, in home butter-making, between the last skimming and churning ?

M. Leclair.—We recommend at least 12 hours for ripening ; 24 hours, if possible, would be better, but 12 hours is the very least that can be productive of a good, complete fermentation. Suppose we have to deal with the cream of Monday morning and Monday evening ; we begin by cooling the former to hinder its fermentation ; on Monday evening, we add the morning to the evening cream, after having well stirred the morning cream. This operation is to be repeated on Tuesday morning, if we intend to churn on Wednesday, and the fermentation is to be started on Tuesday morning, so that the cream shall be ripe on Wednesday morning.

M. l'abbé Côté.—At what temperature should the home-churning be begun ; at the same as at the creamery ?

M. Leclair.—Just the same ; if you aim at having firm butter, you must observe the same rules as at the creamery.

The Rev. Père Lacasse.—Tell us, please, what that temperature should be.

M. Leclair.—It depends upon the season. In summer, in hot weather, the churning should begin at 50° F. As the outside temperature lowers, the churning temperature should be raised in proportion, up to 62° in winter. I do not advise churning at 64°, unless the room is very cold indeed ; still, I remember an exceptional case, in which 70° degrees was the temperature used.

M. l'abbé Côté.—Will you kindly say what you mean by the expression " ripening the cream " ?

M. Leclair.—By " ripening the cream " is meant the production of a certain degree of acidity which, caused by a ferment, brings out the aroma.

M. William Tremblay.—Ought the cream to be frequently stirred during the last 24 hours before churning ?

M. Leclair.—The cream ought to be left quiet for 7 or 8 hours after the fermentation has begun ; up to that time, it should be stirred every 2 hours.

M. Chagnon.—What is your opinion of a maker who only skims every two or three days, and makes his butter immediately after that operation ?

M. Leclair.—He makes, then, what may be called " butter from sweet-cream." I have had no experience in making that sort of butter. Some people say that it will keep as well as any other kind ; I am quite willing to believe it, and to trust to what they say about it.

M. Chagnon.—I have, for experiment, made butter as soon as the cream was cooled. I do not know whether it will or will not keep.

Mr. Barnard.—When we started the Dairy-school, at Kamouraska, we sent to Ontario for the best butter-maker to be had. He came from the States, and for two years all the butter was made from sweet-cream. Butter was made there in September that was almost as good in the following June as on the day it was made nine months previously.

M. Chagnon.—I made my experiment, with a view to save labor, but I do not yet feel prepared to advise any one to follow my example

M. Leclair.—Once upon a time, immediately after skimming we lowered the temperature of part of the cream to 40°, and churned it to see what difference then would be between the butter from it and from the rest of the same cream churned the next day ; but we did not try whether that butter would keep.

The Unknown.—Was the yield as great ?

M. Leclair.—The yield from the sweet-cream was less than the yield from the other.

M. Aimé Lord.—Will you be good enough to tell us how it happens that, in summer, the butter, from day to day, does not always come of the same color ? I have found this the case in some creameries.

M. Leclair.—I have found butter differing in color from the beginning to the end of the season, but never from day to day in the course of the summer. When we add the butter made one day to that made the day before, there is a shade of difference in color, but after a time the difference disappears, and the butter is uniform in color.

M. Chagnon.—May this not be attributed to the fact that more water is put into the churn one day than on another ?

M. Leclair.—I cannot say.

M. J. de L. Taché.—M. J.-M. Tellier having asked me to describe the advantages of the syndicates, I have to say that they consist in this : A syndicate is an association formed by proprietors of cheeseries and creameries with a view to the engage-

ment of an inspector, whose duty it is to look after their factories throughout the season.

The advice of the inspector will be of great service to the greatest number of the members of the syndicate. It is only necessary to put this question to make the services that an inspector can render intelligible: Is it a good thing to have at hand a skilled teacher to aid us with his advice? I feel that the benefits derivable from the advice of an inspector amply justify the payment of the trifle that each member has to contribute towards his salary. I say "trifle", because the government assists those who unite to form a syndicate, by a grant of $250.00 towards the inspector's pay.

In some cases, the proprietors of factories, as well as very skilful makers, will not join a syndicate, for the reason that, satisfied with the quality of their goods, they do not think that it will do them any good. In refutation of this objection, I reply that every one knows that it is not the quality of this or that maker's goods that fixes the price of butter or cheese in any given district. A good factory surrounded by bad ones will sell its goods for less than if it were situated in the midst of other good factories. Bad factories round a good one endanger its reputation, and the reputation of the whole district; consequently, the maker who turns out good articles under such conditions has a difficulty in finding good prices on account of the bad repute of his neighbours.

Report of the Judges of the silage-samples.—"Having been appointed, jointly with Messrs. Ness and Drysdale, to judge the samples of silage laid before the convention, I, in their name as well as my own, beg to report as follows: Two samples of silage have been examined, and one of them, belonging to M. Timothée Brodeur, was found to be of first-rate quality. The Judges agree in stating that cows fed upon such silage as this must give excellent milk. Unfortunately, they cannot say so much for the other; it is very sour, and utterly unfit for milk-making. Its sourness is due, specially, to its not having been sufficiently trodden in the silo.

(Signed) WILLIAM TREMBLAY.

LECTURE BY Mr. I. J. A. MARSAN.

On Root-crops.

Summary.—General considerations—Effects on the soil.—As food.—Cultivation.—Choice of land.—Its preparation.—Stubble cleaning.—Manures.—Quantity of dung.—Place in the rotation.—Sowing—Preparation of the seed.—Quantity of seed to the arpent.—Varieties.—Potatoes.—Carrots.—Mangels—Turnips.—How to sow.—Care of while growing.—Thinning.—Keeping—Yield.

General considerations.—The plants of this kind, which are the most common and the best for general cultivation, are mangels, carrots, swedes and turnips; to these may be added the potato, though we shall omit the details of growing that crop in this lecture.

I.—Effects on the soil.

The deep and repeated ploughings, the heavy dunging, the perfect pulverisation of the soil, the hoeings, and the numerous other dressings (façons) that these crops require, their tap-rooted habit of growth that enables them to draw up part, probably the greater part, of their nourishment from the subsoil, from a layer of the ground that the roots of grain and hay, except of clover, never reach, make of these plants genuinely improving crops in almost every point of view. Well managed cultivation of mangels and carrots indisputably puts the land into a better state of productiveness, which is unfailingly shown by the improved crops of grain and hay that follow them. Of this I am sure, from their effects on the farm of Assomption College. Invariably has the field, in which carrots or mangels were grown, yielded better crops of grain and hay in subsequent years, than the fields planted with maize or potatoes, the manuring being the same in all cases. The reason for which is easily perceived : the carrot and mangel *draw* the top-soil less than the maize and potato, on account of the different fashion in which their roots feed.

The potato, nevertheless, does ameliorate the land more than grain, though in a less degree than mangels and carrots.

Altogether, the effects of root-growing in the improvement of the physical properties of land,—deepening, cleaning, pulverisation, operations that facilitate the fertilising action of the natural agents of vegetation, air, moisture, heat,—deserve the serious attention of all farmers who wish to increase their production of fodder and, thereby, the returns from their farms.

II.—As food.

Roots play a very important part in the feeding of stock. Though watery, and not very rich in albuminoids, they contain a good deal of the digestible carbo-hydrates ; and plenty of phosphoric acid, especially turnips and swedes, for the formation of bone. Their succulence tends to stimulate appetite and to aid digestion, the secretion of milk in particular. They should always be included in the winter-rations of milch-cows ; but in this case they should be accompanied by foods rich in nitrogen, such as pollard, bran, cake, clover, etc.

Mangels and *carrots* are in very deed valuable aids in the cheap and economical production of milk in winter. *Swedes* and turnips will assist the growth of young stock, and their nutritive effect will be even more perceptible in the fattening animal.

Work-horses and *foals* do better if carrots are added to their ration of oats. Potatoes help fattening hogs. Were there no other advantages offered by roots than the above, they should suffice to induce us to grow them on a larger scale than is usually the practice here.

III.—Cultivation.

Choice of land.—For potatoes: soil light, cool and deep, not too moist, fairly rich in potash. The soils best adapted to the production of good potatoes are the hilly loams, more or less stony, but cleared of the stones, originally covered by maples and other hard-woods. Still, the potato will yield well if properly manured and cultivated, on all soils except sterile sands and too stiff clays.

For carrots.—Sandy loams, rather moist than dry, deep, naturally rich or well manured.

For mangels: calcareous clay-loam, rich in potash, nitrogen, and phosphoric acid, in a word, a superior loam, deeply pulverised.

Swedes: the same soil as mangels, though, if possible, still richer; with more phosphates.

Turnips do well on light land, rich in lime and potash.

Soils that are not such as the above naturally, must be brought to the same condition by working and manure, for plants, to yield large, paying crops, must be able to extract easily and in abundance all the elements of their food from the soil.

Preparation of the land.—It is not necessary to say that land intended for roots must be thoroughly drained and sub-soiled, or, at least, deeply ploughed, the preceding fall, especially if it is rather stiff. These two conditions are essential to the production of heavy crops. (1)

Stubble cleaning.—As soon as the previous crop is carried, the dung is spread, if the dung is to be applied at that season, and thoroughly mixed with the soil by a shallow furrow, with the three-share plough, or with a spring-tooth harrow, a disc-harrow, or a powerful grubber. If none of these are on the farm, a common plough must be used.

This operation gives the dung and stubble a chance to decompose in the soil, and the weed-seeds to germinate; as soon as the land begins to look green, harrow it thoroughly. Now is the time to spread ashes and other manures that are not easily soluble.

Lastly, before frost, plough deep, with a narrow, and therefore, an upright furrow, sub-soiling if needed and if possible. The upright furrow enables one to work the land better, and to keep the manure a-top, which is the proper thing to do at this season. The water-furrowing must of course be strictly attended to.

When spring arrives, and the land is fit, the harrow and grubber should go to work across the ridges; and then, if the land is a little beaten down (by rain or thawed snow), it should be cross-ploughed. The harrows go to work again at seed-time, when the furrows or the drills are drawn out. If, after harrowing, the land is still

(1) This fall, I saw mangels of 15 lbs. in weight grown on land subsoiled in 1895, the tap-root of which had gone down 22 inches in depth. There is nothing surprising in the fact that in a layer of earth 22 inches deep, the roots found 2 or 3 times as much food as in a layer only 6 or 8 inches deep.

too cloddy, as may happen when a rather heavy soil has, unfortunately, been ploughed when rather "clung," it should be rolled, and harrowed again. The essential point is that the land be perfectly worked, and pulverised as deeply as possible.

Not infrequently, in light well drained soil, one thorough working, especially with the disc-harrow, is enough to prepare the fall-ploughed land for the drills.

Also, in the case of light land, if the fall-furrow has been jammed down, it should be cross-ploughed without previous harrowing. Harrowing the drills is done with a "drill-harrow", immediately before sowing, for tap-rooted plants of course.

It is important that the sowing be done on land freshly prepared, and that is the reason why it is not always wise to prepare the land too long in advance.

Should the spring be a little advanced, i. e., at the end of May or the beginning of June, there is one thing that must be avoided, namely, working the land too much with the harrows, etc ; for this may dry up the soil so as to hinder the coming up of the seed, and cause the loss of the crop in case of a dry summer. No fear of this when the seed is sown early.

In sandy loam—lightish land—, naturally or artificially drained, some farmers prepare their land for roots entirely in the fall, even to the drawing of the drills. Of course, in this case, the dung is spread in the drills, and covered by splitting them.

In spring, when this method is followed, the only thing done is to pass the drill-harrow over the drills. Carrots especially are treated in this way, and it greatly lessens the press of work in spring, as well as produces cleaner, better shaped carrots by their growing on a firm, consolidated drill. The sowing, too, can be done earlier, which is a great advantage to the carrot, provided the ground is warm enough. (1)

Manures.—As all roots take a great deal of nitrogen from the land, dung is the chief and, generally, the best manure for them. It should be well rotted for mangels (2) and carrots, fresh for potatoes, applied in the fall, as above, on clay-loam, or in early spring on light land. In the latter case, it is to be buried by the cross-ploughing ; the harrowing and drawing out the drills will mix it with the soil. It often happens, however, even on light land, that spring-manuring causes the development of leaves to the detriment of the roots, which in this case grow forked ; so, dung to be applied in spring should be, for tap-rooted plants, more rotten than that applied in the fall, though, unfortunately, the opposite is usually the case. When spring-manuring is intended,—which indeed is generally unavoidable—the dung must be carried to the field in winter,—especially if it is rather distant from the

(1) Early sowing may necessitate an extra horse-hoeing, but the yield generally pays for it. I have already sown carrots, April 20th; they won the first prize at the Provincial Exhibition with ease. (See "time to sow").

(2) When used in the fall, fresh dung is often the best for mangels.

farm,—be put into a large heap, well pressed down by the horses and sleighs going over it in unloading. Soon after, the heap is to be turned and well mixed, throwing the sides and the more strawy parts into the middle, finishing by squaring it up into a regular shape. This makes the fermentation more uniform, and the mixen homogeneous throughout, which is of course beneficial to its future use. As soon as the land will admit of the wheels of the dung-carts going over it, usually about the last of April or the first of May, cart it out, spread it, and plough it in. From that time till seed-time, 10 to 15 days, often more may elapse, during which time, the dung decomposes in the land, the plant-food is elaborated, and the young plants absorb it as soon as they come up. When the manure is applied in the autumn, it should have been well preserved during the summer in squared up heaps, well consolidated, covered with from 6 to 8 inches of earth, and kept constantly damp. It should retain, as far as possible, all its fertilising principles, its ammonia and all the urine as it contains nitrogen and potash, that are indispensable to roots.

In growing potatoes, many farmers prefer spreading the dung in the drills just before planting, with an idea of its being an economical proceeding, particularly when planting for market on a large scale. As regards yield, this really may be judicious for early planting; but, late ones do not always profit, even in propitious seasons, by all the nutritive elements of the manure, so that, both for the advantage of the soil and of the future crops, I generally prefer spreading the dung on the surface and ploughing it in.

One way of manuring is sometimes successful, for potatoes in a dry soil; it is that of top-dressing the potatoes with recent dung. If it rains shortly after, the loss of ammonia is nothing or trifling, and the soil is kept moist over the sets, which more than compensates for any possible loss of fertilising constituents. In such cases, this treatment has already produced great crops.

Quantity of dung.—The quantity of dung to be applied to the arpent varies from 10 to 20 tons, depending on the richness of the land, its nature, the quality of the dung, its mode of application, and also on the kind and quantity of artificials proposed to be added to the dose of dung. No use to give heavy dressings of dung to light land, for it will have its elements of fertility drawn off into the sub-soil before the crop can utilise them. The manure, too, should not be buried so deep in light as in heavy land. In clays, the dressings should be larger, because the soil is in a better position to retain the elements of plant-food, and there is also an advantage in mixing the dung with a deeper layer of soil.

Heavy dressings of dung, even of good dung, with a view to the obtaining of a maximum crop, are not always economical. Used alone, for roots on rather worn out land, they are insufficient for the production of the heaviest crops. Dung is a very important addition to land on account of the *humus* with which it enriches it, and which imparts to it properties that are absorbent and retentive of moisture. Moreover, it supplies all their foods to the roots, though not in proper proportion,

or available at all periods of their growth. Dung is a general manure, but badly balanced. It often induces too much leaf and too little root.

This is the reason why, on many soils, very large crops of roots cannot be grown without the addition of plant-food in which both soil and dung are deficient —generally the *dominant* of the plant. (1)

The following tables which present, the one the chemical composition of roots, and the other the quantity of fertilising elements removed, by an ordinary good crop, from an arpent of land, show the demands of these crops as regards manure.

AVERAGE PERCENTAGE OF THE COMPOSITION OF ROOTS.

According to MUNTZ and GIRARD.

KIND	Nitrogen	Phosp. Acid.	Potash.	Lime.	Magnesia.	Sulph. Acid.
Mangels.....Roots.....	0.18	0.08	0.43	0.04	0.04	0.03
" .....Leaves.....	0.30	0.08	0.43	0.17	0.14	0.11
Carrots.....Roots.....	0.21	0.11	0.32	0.09	0.05	0.06
" .....Leaves.....	0.51	0.10	0.37	0.86	0.12	0.15
Swedes.....Roots.....	0.25	0.14	0.40	0.09	0.02	0.08
" .....Leaves.....	0.35	0.26	0.36	0.84	0.10	0.30
Potatoes.....Tubers.....	0.32	0.18	0.56	0.02	0.04	0.06
" .....Leaves.....	0.50	0.10	0.30	0.50	0.27	0.06

Quantity of fertilising elements taken from an acre by the crop:

PLANTS.	Crop per acre.	Nitrogen.	Phosphoric Acid.	Potash.	Lime.
		lbs.	lbs.	lbs.	lbs.
Potatoes.....	215 bushels.	57	26	82	17 to 18
Mangels.....	15 tons.	94	35	122	42
Carrots.....	11 "	72	31	87	81
Swedes.....	16½ "	133	84	183	151

(1) See "Georges Ville on artificial manures."—A. R. J. F.

As will be seen by the above tables, potatoes, mangels, carrots, and swedes, cannot thrive on land poor in lime unless that mineral is added, at the rate of 3 to 5 barriques (18 to 30 bushels) an acre. (1) The success of the four crops is equally impossible on land poor in potash and phosphoric acid, unless these constituents are added in some form of artificial manure.

In such conditions, the best results in general will be obtained by 10 to 15 tons of good dung to the arpent, and—for potatoes, 10 to 15 bushels of hard-wood ashes unleached, or 200 lbs. of sulphate of potash—for mangels, 200 to 300 lbs. of superphosphate of lime, and 200 lbs. or more of sulphate of potash—for carrots, perhaps a little less, and for swedes, at least 100 lbs. more of each manure, as the latter are the most exhausting of all root-crops. These quantities are based rather on the data of practice than on the strict calculations of science, with which one can never fully comply without a previous knowledge of the reserves of the soil, which is never supposed to be completely deprived of the manurial elements I have just mentioned.

And it must be born in mind that even moderately heavy land is generally sufficiently provided with potash, and that *terre jaune* has enough lime in it, and frequently enough potash too; in such cases, the addition of superphosphate alone to the dung will be sufficient.

Liming is done in autumn, when clearing the stubble, or on the last ploughing; the same treatment applies to sulphate of potash, kainit, and ashes. (2) Still, these can be advantageously applied in early spring, as can superphosphate. If the land should prove to be poor in *chlorides*, a few cwts of salt will increase the yield of mangels, and, usually, 150 to 200 lbs. of plaster will help the swede-crop. As soon as the mangels are up, from 150 to 200 lbs. of nitrate of soda, sown along the rows, or a watering with weak liquid manure, will hasten the growth of the plants, and help them to reach more rapidly the moisture and manure at the bottom of the drill.

Experience proves that the cost of these complementary manures is more than compensated by the saving in dung and the increased yield of the crop.

In every crop, and more especially in the root-crop, the land must be so worked that at every stage of its growth, from germination to maturity, the plant shall find within reach of its roots all the food it needs for its rapid and full development.

And the depth at which the manures are to be buried is by no means unconnected with the success of the crops. The nature of the soil and of the plants governs this depth. We have already described the practical details. The principle to be followed in this is: in light, warm soils, manures, being more rapidly dissolved and led into the subsoil by rain, must be kept near the surface of the land; the nitra-

(1) In this as in many other cases, the words "*acre*" and "*arpent*" seem to be used indiscriminately the arpent is to the acre as 11 : 13, nearly.—A. R. J. F.

(2) As already stated above.

tes, as we saw, are to be sown on the very surface during the growth of the crop ; and on other soils, the manure is to be placed at the depth at which the roots go to their work.

Potatoes, swedes, and turnips feed rather near the surface ; while mangels and carrots go deeper for their food.

Place in the rotation.—Root-crops hold the first place in the rotation, and usually succeed a grain-crop. Still, clover is assuredly the best forerunner of potatoes and corn, and, generally for all tap-rooted roots, since it opens the pores of the soil and enriches it in nitrogen and humus. In this case, a less quantity of dung will be required, and mineral manures produce the best effect.

Barley, or wheat, with grass-seeds, should follow the root-crop.

Sowing— the proper time.—Do not sow before the soil is fairly warm ; it only adds, uselessly, to the trouble of hoeing, etc. Still, the land must be moist enough to allow the seed to germinate and come up quickly. These conditions being fulfilled, potatoes, particularly the late sorts, and carrots may be sown as early as possible, mangels, in the last fortnight in May, swedes, from May 15th to July 15th, according to the variety, the district, and the attendant circumstances. Generally speaking, cabbages are sown in frames in early May, to be transplanted as soon as the plants are sufficiently developed.

Preparation of the seed.—Carrot-and mangel-seed should be steeped for 24 hours in weak, warm liquid manure, to increase their vitality and hasten germination. Dry the seed when sufficiently steeped with a mixture of fine sand, ashes, and plaster, sifted and verydry.

Seed to the arpent.—Carrots, 4 lbs., mangels, 6 to 8 lbs., sugar-beets, 10 to 12 lbs., swedes, about 3 lbs.

Varieties.—Those considered the best, as far as yield is concerned, are : *Potatoes.—American Wonder, Rochester Rose, Early Northern, Dakota Red, etc.*

Carrots.—Mammoth half-long White ; Improved long white ; Improved short white, etc.

Mangels.—Long red, Evan's Mammoth Red ; orange ovoïd, etc,

Turnips.—Purple-top Champion ; Elephant's Master ; Imperial swede, Skirving's swede, etc.

How to sow.—When the time of sowing is at hand, the drills are got ready by harrowing and lightly rolling them. It is better not to prepare more land at once than can be sown in a day. The distance between the drills should be, for carrots, 22 inches, and 24 inches for mangels and swedes. Use one of the hand-machines (*semoir à bec*) ; but if you have no good one, sow by hand ; it is certainly the most accurate plan, but not always the most economical or the easiest.

Depth of sowing.—For carrots and mangels, from ¾ to 1½ inch; ½ to ¾ for swedes. The soil and the season must be the guides. When the soil is dry and the season advanced, the sowing should be deep, unless the land should be moist in the latter case.

It is a good plan to mix a few seeds of turnip with the carrots and mangel seed, as, from the earlier appearance of the first, the rows will be the sooner perceptable and the horse-hoe can go to work at once.

Cultivation.—The number of horse-and hand-hoeing required by the crop depends upon circumstances. The horse-hoe must be used often enough to keep the soil always clean and friable, and the use of this implement must not be postponed till the land is green with weeds; for this would be to carelessly allow those robbers to seize the food intended for the roots, and run the risk of losing a great part of the crop. The horse-hoe should run as close to the plants as possible. The top of the drills need the hand-hoe.

Thinning out.—When the roots are about as large as the barrel of a feather, they will have to be singled. This is done partly with the hoe, partly with the hand, and just as easily and quickly by another plan, by means of a sort of sharp blade, with a handle attached, made out of an old scythe, and worked by the singler on his knees. This works much quicker than the fingers alone. When the singling is done, the drills are thrown up again with the double-mould board plough, as the thinning will have pulled them out of shape. This is the most troublesome job of the whole of root-growing, and requires much attention combined with skill and activity.

Distance between the plants in the row when singled should be: carrots, 4 to 6 inches, according to sort, nor less than 5 or 6 inches for those mentioned above; mangels and swedes require from 12 to 18 inches; sugar-beets, 6 to 8.

Keeping the surface of the land always friable and light is of great importance; it arrests evaporation, and preserves moisture within reach of the roots. Nothing pays better in root-growing than frequent stirrings of the land between the plants.

If there are any gaps in the rows of swedes or mangels, they may be filled up by transplanting plants about the size of a pen-stem, pulling off all the leaves except those of the heart. For this a dibber is used, with which a hole is made in the ground deep enough to let the plant be thrust in without its being bent; after which it is to be watered with the spout of a watering-pot. If the weather and the land are not too dry, this operation seldom fails. Gaps in the carrot field are filled up with plants of swedes, turnips, or mangels.

If you want immensely large roots, water them frequently with liquid manure.

When using the horse-hoe, take care not to break the leaves of the plants.

After the last hoeing, pass the double-mould board plough between the rows to re-shape the drills and earth-up the roots.

Mangel-harvest begins in the first half of October, and carrot and swede harvest in the second half of that month.

When the roots adhere so firmly to the ground that, in the absence of an extractor, they are hard to draw, pass a plough on the right of the rows as near the roots as possible without bruising them; the man who draws them will have no difficulty in getting them out, if he pulls them a little towards the right. He should then knock off the adherent earth gently, and with a turn of the hand lay them in a row to his right. The headers (décolleteurs) follow, with reap hooks or strong knives, and taking the roots up in their left hands, chop off the heads carefully. All the heads and the necks of swedes and sugar-beets are taken off, but only the leaves of carrots and mangels. The roots are collected into small heaps, handling them carefully; in loading them into the carts and in the cellar, the same precaution is observed lest they should be bruised and bleed.

In favourable weather, the drawing and topping of the roots is done in the field with great expedition by young and vigorous lads; but when, as with carrots, women and children do the work, the plants, leaves and all, are carried under shelter and the topping done there.

Mangel-leaves are not worth gathering up; they remain on the land and, those that the cattle or sheep do not eat as they pass, are ploughed in; but carrot-leaves, or tops, are capital food for cows. They are either ensiled or kept in alternate layers with straw, when they are superabundant, and if scarce, given to stock in small quantities as long as they last.

Swede-leaves increase the yield of milk, but given in too large quantities, injure the flavour; better give them to young stock, sheep, or pigs. The last eat them best when cooked and mixed with meals.

Preservation.—To keep roots in good condition till spring, requires a dry, airy, well ventilated cellar. Not necessary to build a root-house for the purpose; a part of the barn or even of the cow-house, near the feed-room, may be easily made frost-proof.

When several sorts of roots are grown, carrots ought to be first consumed, and mangels last, as the latter improve in quality in keeping.

The yield of roots to the acre varies with the soil, manure, and the weather throughout the season. Potatoes yield from 100 to 400 bushels, and even as much as 700 bushels; carrots and turnips, 10 to 30 tons; mangels, from 12 to 36, up to 60 tons.

An arpent of carrots averaging 1¾ lb., with no failures, would certainly give 30 tons of roots and ten of tops, or 40 tons of succulent food in all. An arpent of mangels, averaging 3½ lbs.—a small mangel—also without failures, would give 31½ tons of roots. So it is very important that there should be no gaps in the crop. I have made a calculation of the quantity of cattle-food produced by an arpent of roots and of some other crops; I submit these figures to your consideration; they contain a lesson.

Comparative yield of an arpent of roots, and of some other crops, in digestible nutrients, and in equivalents of hay, with respect to these nutrients.

COMPARATIVE YIELD OF AN ARPENT OF ROOTS, AND OF SOME OTHER CROPS, IN DIGESTIBLE NUTRIENTS, AND IN EQUIVALENTS OF HAY, WITH RESPECT TO THESE NUTRIENTS.

CROPS.	Yield in lbs. per arpent.	Digestible nutrients.		Nutritive ration.	Equivalents in hay as regards total nutrients.	
Average hay	3000	1422		1 : 8	1.00	
Clover hay, 2 cuts	5000	2315		1 : 6	1.62	
Green fodder—½ oats, ½ peas and lentils —fine	5000	2514		1 : 5 to 6	1.77	
Geeen horse-beans	20000	1480		1 : 2. 8	1 04	
Fodder corn not ensiled	of 40000	3720		1 : 13	2.61	
" "	to 30000	2790			1.95	
Peas, grain 25 bush.	1500	1117	2037	1 : 2. 8		
" straw 1½ ton	2500	920		1 : 12	1.43	
Beans, grain 20 bush.	1200	880	1694	1 : 2. 4		
" straw 1 ton.	2000	814		1 : 7. 3	1.20	
Oats, grain 30 bush.	1020	581	1425	1 : 6. 8	0.40	1.00
" straw 1 ton	2000	844		1 : 30	0.60	
Corn, grain 30 bush.	1680	1261	3304	1 : 9. 1	0.88	2.33
" stalk	4400	1688		1 : 34. 4	1 20	
Pumpkins	5000	355		1 : 6. 5	0.25	
Potatoes, 150 bush	9000	2169		1 : 10. 6	1.52	
Swedes, roots	30000	2850	3146	1 : 8 to 9		
" leaves	4300	296		1 : 4	2.31	
Mangels, 18 ton	36000	4032	4832	1 : 9. 3	2.40	3.00
" leaves	15000	800		1 : 3. 7	0.60	
Carrots, roots	30000	4230	5200	1 : 9 to 10	3. 5	
" leaves	10000	970		1 : 4	to 3.75	

It must be observed, in this table, that the figures of the equivalents in hay under the head of total digestible nutrients do not show the food values. We are well aware that the albuminoids possess an alimentary value greater than the carbo hydrates—starch and sugar.—The crops whose nutritive ratio is narrower (smaller division) have, in equal proportion to the digestible nutrients, an alimentary value higher than those with a broader ratio (higher divisor). (See note A.) Thus the food value of green fodder, whose nutritive ratio (1 : 5 to 6) is higher than that of hay (1 : 8), is more than twice the food value of hay, while the proportion of digestible nutrients is 1.77 % for green fodder, against 1 for hay.

We see that an arpent of carrots yielding 15 tons of roots gives, including tops, the greatest quantity of digestible nutrients, i. e., $3\frac{1}{2}$ to $3\frac{3}{4}$ times as much as a crop of hay, with still more food-value in it; then come mangels; but if their leaves are left out, their nutritive ratio is no more than 2.54 times that of hay, with, relatively, less food-value. One thing to be observed is that a crop of 30 bushels of oats, with the straw, contains no more nutrients than a crop of 200 bdles of hay, and the food-value of the hay is rather higher than that of the whole crop of oats.

And, so from the data I have just quoted may be drawn the following conclusions:

1. From the point of view of the rational feeding of cattle, we must with root-growing unite the cultivation of leguminous fodder-crops, clover, pease, etc., that supply the proteids, if we do not want to be obliged to either give the cattle a great deal of grain, grown or bought for them, or to make but little profit from feeding them. No roots, but plenty of leguminous fodder, is better than plenty of roots and no leguminous fodder:—2. Only so much land must be devoted to the root-crop as we can thoroughly till and manure, with a view to getting the largest possible yield from it; the profit depends upon that condition:—3. On other than soils worn out or foul with weeds, which must be improved in some way or other, and where the naked or summer-fallow is not indispensable for that purpose, the superior utility of the root-crop, as the cheap producer of foods suitable to the making of milk and meat, may be disputable; but that should not lead us to the denial of the real and multiplied benefits to be derived from these crops. Still, I must admit that, at least in good, clean land, the full and careful cultivation of hay, clover, and green-fodder, for cattle-food, must be, generally speaking, more profitable than growing roots, at least in these days. And so the well conducted cultivation of these plants should be a cheap way of bringing about better crops of hay and clover, and to raise the yield of oats from 30 to 50 bushels an arpent; that of hay, from 3,000 to 5,000 lbs.; and the yield of clover and green-fodder, from 5,000 to 7,000 lbs.; and then the cost price of 100 lbs. of food will have been considerably lowered.

NOTE A.—Nutritive ratio, quotient of nutrition, food-ration, signify 1 lb. of albuminoids — or digestible nitrogenous matter,— against so many pounds, and fractions of a pound, of carbo-hydrates and fat — digestible non-nitrogenous matter, in these fodders.

But when root-growing is hindered by scarcity of labor, the judicious application of manures to the crops just mentioned will cause wonderful results: the land will become rich in humus and nitrogen, and as the increase of the food supply goes on, so will the increase of the production of meat and milk.

COST PER ARPENT OF THE ROOT-CROP.

There are few crops the cost of growing which are more susceptible of variation than the root-crop. It depends upon a crowd of circumstances: price, experience,

skill, and activity on the part of the laborer ; the nature, condition, and fertility of the soil ; the cost of manures ; the sort of season ; the proper time for doing the work, etc., etc.

Here are some figures, the result of pretty exact figuring. They apply to a crop of carrots and mangels heavily dunged ; the carrots yielded 30 tons of roots to the arpent :

Dung—$\frac{1}{6}$ of 50 loads at 25 cts	$ 2.08
Spreading of dung	0.50
Ploughing —2— fall and spring $1\frac{1}{2}$ day	3.00
Harrowing $1\frac{1}{2}$ hr	0.30
Drilling $\frac{1}{2}$ day	0 50
Rolling 1 hr	0.15
Seed 6 lbs at 25 cts	1.50
Sowing, 1 man and his assistant $\frac{3}{4}$ day	1.25
Singling, etc, 15 days of a man at 80cts	12.00
Horse-hoeing, 1 day	1.50
Pulling, topping an cellaring	5.80
Rent	3.00
Total	$31.58

We do not assert that these figures are absolutely exact, in every point and under all circumstances ; they may be thought too high ; we admit that they can be done at less cost, but they may be made to cost more At any rate, there is sufficient margin to leave a clear profit, since 15 tons of carrots to the arpent contain food of greater value than the above amount, if the leaves are included. On the other hand, the cost is pretty nearly the same as the cost of the same crops at the Ottawa Experimental Farm, according to the report for 1894.

CROPS	Yield per acre in round numbers	Cost per acre cents omitted	
	lbs.	$	cts.
Carrots	43400	40	00
Mangels	37100	32	00

From $1.75 to $1.80 a ton.

It is high time, gentlemen, that I should abandon these details to your consideration ; I beg you to pardon me for having rather taken advantage of your patience, and I thank you heartily for your kind attention.

SESSION OF THURSDAY EVENING, DECEMBER 3rd

LECTURE BY M. J. DE L. TACHÉ

ON MOTTLED BUTTER.

Importance of the subject—Competition between experts and makers—Definition—Causes.—1. Want of uniformity in the cream.—2. Discolouration of the butter.—3. Imperfect mixture, and imperfectly dissolved salt.—Conditions under which these causes are produced.—Remedies.—A maker who studies his work.—General way of proceeding.

Mr. President and Gentlemen,

At our Waterloo meeting, last year, there was a discussion about the *mottles* and *white spots* that are sometimes found in our creamery butter.

Our makers often discuss this fault among themselves; M. Chapais spoke of it in a late number of the "Journal d'Agriculture."

And I know a good many dealers who would by no means be sorry to get all the information possible about this defect, which compels them frequently to make "cuts" in the prices agreed upon.

So, I have undertaken the task of compiling the following considerations on the subject.

A very excellent dairy-paper, the *Chicago Produce*, fairly put the point that we are engaged with by offering a prize for the best essay on *mottles and spots in butter*.

Ninety-two replies were sent in, by experts of all kinds; by scientific, as well as by practical men. The entirety of these replies is of great value; hardly any of them are complete in themselves; but the ideas that are evolved in the combined contributions to the competition elucidate the question most satisfactorily.

I am obliged to our secretary, M. Castel, for having drawn my attention to this competition, and for having proposed it to me as the subject of this address. I will only make an abstract of the replies sent in, arranging them as it seems to me they apply to the circumstances in which we are placed.

First, let us define the various forms under which the want of uniformity of colour in any box or tub of butter manifests itself in common practice.

The terms *mottles*, *streaks*, *rowiness* apply to those shades that are produced in *rows* more or less parallel to each other, or superincumbent, an order arising from the manner of arranging the butter in rolls or in sheets under the kneader or butter-worker.

The term *spots* applies to the spots that appear in no definite order in the mass of butter, in flakes or plates (*plaques*) larger than the white points (dappled butter); this defect is the least common.

The term *white points* applies to small white spots enclosed in the mass of butter and which are either bits of curd, generally very finely divided by the churning, or bits of dried cream that the churn has not broken up. Unlike the mottles and spots, these points can be recognised by the touch, since they are of a texture differing from the mass of the butter, being generally harder.

All the causes that produce these imperfections may be grouped in three divisions:

1. Want of uniformity in the cream.
2. Legitimate discolouration of the butter in the presence of air or water.
3. Imperfect mixture of, or imperfectly dissolved, salt in the butter.

I propose to go over each of these divisions, pointing out how the different defects are produced, and what are the remedies to be applied to their prevention.

1. WANT OF UNIFORMITY IN THE CREAM.—There are different modes in which this want of uniformity manifests itself.

1. The cartage of the cream may cause a partial churning of it, and the bits of butter thereby formed can never be mixed in again; for want of stirring, the bits will dry on to the sides of the vat; and even after stirring, the butter made, not being in the same condition as that made in the churn, will be neither of the same texture nor of the same colour.

2. If the cream is frothy or partly churned by the working in the separator, it also will dry on to the sides of the vat and the dried bits will not mix in.

3. If the cream be skimmed off the milk too thin, the excess of milk in it will separate while standing, the milk will curdle, and the churning will produce an infinity of tiny bits of curd, which will be enclosed in the small lumps or grains of butter gathered in churning.

All these defects will produce more especially the small *white specks*, and in some instances a few *spots*.

As a remedy, we must: 1. Avoid the churning of the cream in transit by cooling it well and using proper vessels, with a second cover inside on the very surface of the cream, to prevent its being shaken about in the can.

2. Never skim the cream too thin; 12 or 14% in summer to from 14 to 17% in autumn, is about the right proportion. In other words, the cream should be of such thickness that from 3 to 3¼ pounds of it would give a pound of butter.

3. The frequent stirring of the cream in the vat, especially when it is frothy, is advised, and should be done until every irregularity on the surface is well mixed with the rest.

4. Strain the cream when skimming, or when pouring it into the vat, and also when pouring it into the churn.

Before passing on to the defects of the second division, it may be observed that these small white specks are almost invariably the result of culpable negligence, since their occurrence may be obviated by stirring and straining the cream.

2.—Discolouration of the butter.—The self-discolouration of the butter in the sense I attach to it may be caused :

1. By being left too long in the washing water.

2. By allowing the water to run too long on the same point in the mass of butter, as happens when the water is let fall from a pipe or tap fixed directly in the churn.

3. By exposing the butter too long in the air.

4. By letting the butter stay too long in the butter-milk, or, when churning at too high temperatures, by the presence of too much butter-milk which the maker, on account of the difficulty of working butter in too warm a state, will perhaps not take pains to expel.

In the first of these cases, the surface of the butter becomes white, and if the working is not carefully done, the mottles or the white spots will appear.

The remedy is to avoid leaving the butter too long in the water, and the more should this be avoided, since by that practice the aroma of the butter is greatly injured.

Next, the washing must be so managed that the water may reach the butter in the churn from below; then, the butter will float as the water rises, and every additional supply of water will fall, not on butter, but on water.

As to exposure to the air, it is only necessary when the butter is worked at twice ; but I hold now that this intermission is not essential, if the precautions be taken that will presently explained.

If the working of the butter cannot be finished at once, nothing is easier than to throw over it a cloth soaked in brine to keep the air out and thereby prevent the loss of colour.

To expel the excess of butter-milk, the whole mass of butter must be cooled to 55° before working it, and this operation must be done with the greatest care.

3.—Not thoroughly mixing, and imperfect dissolving of, the salt.—To this I would draw the attention of all makers. Nine times out of ten, *the salt will be found to be the cause of mottled butter*. It is therefore very necessary to examine this point thoroughly.

The working of butter is for the purpose of expelling the butter-milk and not only the water, but also for the mixing in of the salt.

Several conjoined conditions are needed to ensure that the same amount of working fulfil this twofold object, so as to escape all danger of the salt destroying the uniformity of the shade of colour natural to well made butter.

1. *Good salt* is necessary, fine or, if in lumps, well sifted. Our salt is usually good ; use, preferentially, salt in barrels lined with paper and keep it in a dry place. Never use coarse salt.

2. Both the butter and the room in which the working is done must be kept at a proper temperature. As regards the *mottles*, cold is more to be feared than heat. The colder the air the less easily will the salt dissolve.

Experts agree in saying that butter is, in summer, best manipulated when the temperature of the room is about 55° ; but in winter and in the cooler part of autumn, it should approach 70°, as will be shown further on. The whole mass of butter should be of the same temperature. It often happens that the washing water cools the butter unequally (i. e., more in one part than in another) ; or, again, that in a cold room the surface of the butter is too much cooled.

3. Lastly, there must be in the butter a *proper quantity of water with the salt*. Here, once more, the less water the less quickly does the salt dissolve. You will generally find mottled butter dry, and the more so, since we rarely find over-moist butter with mottles. In sharp weather, milk is frozen or at least very cold ; the fat is more solid, the butter more grained, the churning and washing turn out a drier butter, and these things unite with the usual low temperature to hinder the dissolving of the salt.

But, you will ask, with all that, how do the mottles form themselves? Here, gentlemen, I cannot resist the pleasure of quoting to you a passage from one of the letters in the "Chicago Produce," written by a Mr. Nussbaumer, of Texas, who sets before us a good instance of the way in which a maker should examine the pros and cons of his work, when he finds himself in a quandary.

"One fine day, three years ago, I found myself in trouble with a lot of mottled butter, that lost me 2 to 3 cents a pound.....

"The first question that I put to myself was this : What are these mottles? Two shades of colour—that is evident.—The greater part of the butter was of the required colour-shade, but the veins or mottles were paler. On comparing them with *unsalted* butter, I found that they and it had exactly the same tint, both being pale.—What then can cause this deepening of the colour? In the churn I found no difference at all in the tints of the mass.—I put aside one or two tubs of finished unsalted butter, and in them there were no mottles ; the rest of the churning, finished and packed in tubs *but salted*, turned out to be mottled ; this fact led me to the solution at once: *Uneven brining* in the mass of the butter.....How this inequality of brining came about, I discovered by the sequel.....

"One day, in the fall, on the eve of cold weather, I saw my maker at work ; I remained till his work was done, and examined the butter the next day: colour fine and uniform. I had remarked some difference between the method of working at that time and the usual method previously pursued ; to this when his attention was called, he admitted that, instead of dividing his work, and leaving the butter at rest for an hour, as he used to do, he had worked during the past summer and autumn without any resting time,—saying that, as there were no mottles, and as it was a saving of time, he saw no harm in the change.—The next day, the same method was practised, and the mottles reappeared ! This settled the point. I ordered the working to be done at twice, with an hour's intermission, and the mottles vanished.

"Still, I was not yet definitively certain of the reason why working butter

only *once*, in summer, gave no mottles, and, as soon as the cold weather arrived, it needed an hour's rest between *two* workings to ensure the perfect dissolving of the salt.

" Shortly afterwards, we built a room expressly for working the butter in. The building was warmed by steam, but we put no radiator in the new room, imagining that, by leaving the doors open, plenty of heat would enter from the creamery.

" For some time, we were not deceived, but when the real cold weather arrived, the mottles again made their appearance. I ordered one hour, two, three, and at last twenty-four hours' intermission between the two workings, but it was no good ; I ordered the working to be kept up longer, and longer still. At one time, the maker was surely tempted to give up ; the mottles wouldn't go.

" All at once, the thought occurred to me that the temperature of the working room might be in fault. The next day, I found the thermometer at only 55° ; I put in a radiator, and the following morning it was at 70°. Result : no more mottles !

" Weighing all this, the question seemed to me, as clearly as possible, to be reduced to a simple physical fact, i. e., that *the dissolving power of liquids varies, directly, with the increase of temperature.* It is evident that less water is required to dissolve salt at 70° than at 55°."

And now, after this rather long quotation, I return to my point : " How are mottles formed " ? Our Texas friend shows clearly *under what conditions they arrive ;* and I add my testimony to his, and assure you that in nine cases out of ten they arrive in that way. But *how are the mottles formed ?* Does salt deepen or bleach the colour of butter ?

Many of the competitors in the " *Chicago Produce* " say it *deepens* it.

But I am induced to think,—even admitting that *salted* butter is darker than unsalted butter,—that if the salt is in excess in some parts of the mass, from not having been well dissolved or well mixed, this excess will discolour the butter, producing veins or mottles. The salt used is chloride of sodium : now both chlorine and soda are *bleachers.*

At any rate, our friends at the Dairy-school can easily solve the question by analyzing the white and the darker parts of mottled butter, when freshly made : the relative content of salt will be the answer. I said " when freshly made," because the mottles become in time less distinct ; unfortunately, time does not improve the quality of butter.

See, now, what happens when mottled butter is made : it leaves the churn too dry ; or it is too much dried on the working table before salting ; and there is not water enough in it to dissolve the salt during the time it is being worked ; it does not mix well ; it prevents the lumps or sheets of butter from coalescing well ; and, lastly, it turns out in distinctly marked couches or layers, instead of being equally and perfectly divided throughout the mass.

Or, again, the butter leaves the churn too cold ; or it is warm enough, but it is worked in too cold a room, and the salt is hard to dissolve ; or the work of the kneader is not efficient, the butter in too hard a state gathers together with difficulty, and the salt is, consequently, unequally divided in the mass.

Once more, perhaps while carefully attending to the requisite conditions of temperature and humidity, the working is badly executed ; sufficient care is not taken to spread out the butter in sheets of equal thickness, to roll and cut it afterwards so as to refold it or pile the pieces one upon another, in order that at each turn under the roller and at each renewal (*reprise*) the layers of salt be multiplied in geometric progression, 1, 2, 4, 8, 16, 32, 64, and so on, as often as the operation is repeated.—The mechanical worker is safer from this point of view than the butter-table worked by hand.

Or, perhaps, all this having been well done, the butter is not worked long enough.

Too long working must be avoided ; still, the time of working must not be too short.

Here, then, is a general method which will guard against the mottles caused by the salt :

1o To be certain that the salt shall be sufficiently moist, as soon as the butter in the churn is drained, add to it one-third of the entire dose of salt you intend using ; turn the churn gently, so as to distribute the salt over the whole mass ; this salt will retain water enough to moisten the rest of the dose. This plan may require a *little more* salt ; so the third of the dose used must count only as the fourth of the dose, or thereabout.

2o Work the butter in summer at about 55°, still warmer in really cold weather, but never cooler even in the height of summer, though it may happen that the working may be begun with butter at a lower degree, to get the working over before it warms itself up too much.

In the fall and in winter, warm the room up to say 65°, or even 70° ; the butter will of course cool itself down again afterwards.

3o Work the butter long enough ; here, the rule is not easy to lay down.—24 revolutions of the kneader with revolving table (*Mason or V. F. M. Co.*), is Gurler's rule, but take care that all the other conditions, of *temperature*, that is, and *moisture*, be observed.

I have found that 24 revolutions were not sufficient in certain cases in autumn, —for want of these precautions.

As to the hand-worker, the operator must avoid giving blows with the roller ; but the working must be carried on long enough to ensure that the butter be thoroughly blended in a homogeneous mass (que la pâte du beurre soit bien liée).

I think it would be the best plan to slice the sheets of butter and to pile up the pieces, instead of rolling up the sheet in itself ; the salt sprinkled on the surface of

sheets would be more equally divided. The working must be always thwarted (*croisé*), by making the pile of butter take one-fourth of a turn at each renewal of the rolling.

Another often discussed question belonging to our subject: is it best to allow an intermission in the working to ensure the perfect amalgamation of the salt and butter? My mind is not made up on this point; there are pros and cons about it. But there is no doubt that, the temperature being equal, the salt will dissolve more easily by stopping the operation before the working is finished, because there will be more water present. This is the usual practice in Denmark: however, the Danes' chief object therein is not to avoid mottles, but to expel the water and butter-milk; that is their principal aim.—On the other hand, the working cannot be suspended without some inconvenience: where can the butter be put during the intermission? The question demands consideration. In the cold? that would cause a more or less complete cooling of the lumps, and unequal cooling means an unequal dissolving of the salt, unequal resistance to the roller, and, consequently, unequal admixture of the salt.—And in what atmosphere? The aroma of the butter might suffer if the air were not choice.

Any how, if the butter worked as above has no mottles, it may be considered unnecessary to let it rest during the time of working. If, which I do not think likely, the mottles appear in spite of these precautions, have recourse to twice working to rid yourself of them. But do not expose your butter to the cold; keep it at 55° or 65° according to the season as explained above.

A last word now: a maker, young or old, ought always to try at least one tub of butter a day, the day after the making; if he find it mottled, he can at once correct any defect in his procedure, and, as regards the mottled butter itself, he should re-work it until all the mottles vanish. After a fresh working, the mottles that one saw never re-appear; while, on the contrary, in the butter at its first working, they never show themselves at once, but only after the lapse of some hours.

LECTURE BY Dr. GRIGNON,

ON COOPERATIVE ASSOCIATIONS FOR THE MAKING OF BUTTER OR CHEESE BOTH WINTER AND SUMMER.

Mr. President and Gentlemen,

M. Georges Ville begins one of his lectures in these words:

"Never, to my knowledge, has agriculture passed through a period of trials so severe as it is undergoing at this moment, and, which is unfortunately only the prelude of that competition which is one day to arise between the ancient world and the new peoples that are more favorably situated than we as regards labour and the natural and social condition of their affairs. This unprecedented situation compels us to utterly change our old fashion of farming."

If this cry of terror cast an alarm over a country so advanced in agriculture as France, I feel authorised to sound the same cry in your ears, seeing that our young province is only, so to speak, at the beginning of its agricultural reformation.

We must confess that Dairying is going to serve as a basis for all agricultural operations; that it will always be found at the head of the various rural industries, and will always be one of the most profitable.

So well did Denmark perceive this that, in only 12 years, from '81 to '93, that country raised its exports of butter, cheese, and other products connected with the dairy, from $21.277,115.33 to $40,900,347.53; while we, Canadians, only increased our exports by $11,000,000 during the same time. Thus, the increase of the Danish exports amounted to 95o/o, while the increase of ours was only 40o/o. And yet the Dominion has a population of 5,000,000, and Denmark only 2,000,000!

These figures are not mine, but I borrow them from the report on Dairying and Farming, by M. Gigault, Asst. Commissioner of Agriculture.

Were that report read attentively in every family of farmers, an immense benefit would accrue from it, and dairying would be a thousand times more profitable in our Province. For, in this book, we learn how the Danes succeeded in extracting large profits from their small farms, by feeding their cows economically and thoughtfully both in winter and summer, by taking special care of the milk, butter and cheese, attending to their meadows and pastures, etc., etc.

All these different matters have been more or less discussed by the members of this association. Three years ago, I had intended to address you on the subject of cooperative associations, at one of our annual meetings. I had brought with me figures and statistics to prove that this system of cooperation ought to advance the interests of dairying in this province; but, hardly had I opened my mouth, when I regretted it, for I perceived that the question was not yet ripe. I had only just joined the association; consequently, I was young and shy it its meeting, and I sat down quite out of sorts, but promising myself to do better another time, and saying within me: it must not be supposed that, because pleasant things, like butter, milk, and cheese, are at present the subjects treated here, things less agreeable will never succeed in attracting the attention of the association.

However, I feel a little bolder now, and I can attack the question without trembling.

All the same, though, I agree with Ville: "Every one of us, during his life, must encounter serious moments. The important moment for the general, is that preceding the delivery of a battle, and so is it to me just now, for I come among you to deliver not one battle, but two, and perhaps three."

In treating this subject to-day, I feel rather more at ease than in 1893; for I come not alone before you, but accompanied by a man of weight, of study, of experience, a sort of "Man with the Iron-Arm"—as regards dairying of course, our common friend, M. Gigault.

M. Gigault says, in his report, page 22 : "The Danes found out the advantage of cooperation and showed their appreciation of it by establishing creameries. In Denmark, almost all the creameries are the property of an association of farmers of one parish. Each milk-producer being interested in the working of these factories, part of the profits of which accrue to him (I lay great stress upon this phrase : part of the profits of which accrue to him), takes thither all the milk he has, that is to say, that having invested money in an important edifice, in the installation of costly material, and paying for labour therein, generally, $750 a year, he draws from this investment profits all the larger the longer the creamery is kept at work.

"There may doubtless be some inconveniences in this system ; but, I will add ; not many. It possesses one great advantage, that of securing a constant supply, without which no factory can be profitable either to its proprietor or its patrons. Besides, by this system, a far better and more complete fitting up can be arranged.

"The manager of the factory has full power to refuse any milk that he does not approve of, never mind from what cause. This power, he never fails to exert, for we found the milk everywhere of good quality."

There, that is what M. Gigault says of the Danish cooperative system. These few lines are an abridgement of all the advantages this system can afford us :

1. A sort of national financial institutions ; for creameries and cheeseries, receiving 20,000 lbs., and more, of milk a day, will always be stable because they always send to market goods of the best quality, uniform in colour, flavour, aroma, and packing ; thus they take the place of small banks.

2. Cooperation shelters us from the caprice of the single proprietor, who often inflicts upon us a maker of the 2nd or 3rd class.

3. This system protects us from makers of too elastic a conscience, who never scruple to accept foul milk, or milk from diseased cows.

Once, in a certain village, I met a butter-maker who told me that one of his patrons was in the filthy habit of delivering milk with bits of dung in it ! "What extravagance ! " exclaimed I, "he is wasting three things." "How is that ?" replied the maker. "Why," said I ; "He is wasting 1. his own milk, 2. the milk of the other patrons, 3. guess ! his dung.

This maker did not dare to turn away this guilty patron with his milk, lest he should lead away to the little corner factory all the fellow-parishioners with whom he was connected by ties of relationship. He had 22 children, of whom 15 were daughters : all maried women ! If in this parish all the farmers had an interest in one sole parish-creamery, by holding shares in it, the maker would have had no hesitation in sending off Baptiste with his milk. And if he had tried to make a schism and set up another factory, they would have just told him ; "We are not going to sacrifice our shares in our factory on account of your dirty milk. Why can't you do as we do, strain it, aerate it, and, in a word, deliver proper milk. The ties of relation-

ship do not long bind people together nowadays, when they are in opposition to the interests of the pocket."

4. Cooperative factories pay to each shareholder part of the profits derived from the cost of making, which otherwise would be swallowed up in the purse of the single proprietor.

Now, we reach the objections to the establishment of cooperative creameries and cheeseries: Are we going to rid ourselves of the small factories? That depends; I say, yes, and without any commiseration for the small factories which are competing with the larger ones. They deserve ruin without pity, on account of the damage they have done to the dairy-trade of the province on one side, and to private parties on the other. As for the small factories that are not competing, but that remain small on account of want of supplies of milk, I don't want to injure them.

A shopkeeper in one of the parishes of Beauce, whose name unfortunately I cannot recall, whom I met in the cars last year, told me that 5 years ago he expended a large sum in the erection of a fine, large cheesery. Some farmers, jealous of his success, built three small opposition factories, and so great was the competition that his had to be closed. Two years ago, the idea struck him to get up a cooperative association, and he succeeded so well in interesting the farmers by means of shares, that they all left the small factories and patronised the large one. And so, in their turn, the small ones had to shut up, and the large factory is prospering, and everybody is pleased: a justifiable, well managed revenge.

As to the large factories belonging to private parties, we must not try to injure them by means of the cooperative system; but, possibly, many of the large proprietors would not object to the establishment of a cooperative factory, provided it would buy them out.

And why, if they are menaced with a prospective opposition by the erection of small factories, do not the large proprietors at once sell out their factories to all the farmers in a body, so as to prevent the establishment of those small factories that are so injurious to the dairy-trade in this province.

Now, for another objection, that it will not take us long to settle. People sometimes hesitate to confess that any opposition to a large factory is intended. They say: it is only the distance which has led us to quit it. That may be one reason. But, with a large factory, more profit is made, and this is employed in paying for the cartage of the milk, so that he that is 4 miles from the factory is no more distant than he who is four furlongs from it, since he has nothing to do with the cartage.

I think this is the fairest means to employ the revenue, or net profit, from the manufacture of butter or cheese. If our aim is to found large factories, there must necessarily be a great number of patrons; and to that end, the distance between their farms and the factory must be abolished, which can only be done by employing paid men to cart the milk

Let us calculate the cost of this: The cooperative creamery at Fredericksund

cost $6,200. The brick chimney is 50 feet high. There are only 59 patrons ; the maker, besides his rooms and all the milk and butter he wants, has $675.00 a year, out of which he has to pay his assistants. The patrons pay for the salt, barrels and other expenses. From November 1893 to May 1894, the winter six months, this factory received 1,071,513 lbs. of milk, which fetched, in butter of course, 85 cts the 100 lbs.

The cooperative factory at Spangsboro, Denmark, cost $5,407. The 112 patrons keep 800 cows—7.14 each.—Here, we can find larger herds than that. The makers salary is $540.75. This factory receives as much milk in winter as in summer, wherein it beats us, in spite of its climate being as cold and as snowy as ours. The price received for butter is shared according to the richness of the milk, a plan already in partial operation here, and which ought to be universally followed.

The maker estimates that the average-yield is 4,000 lbs. a head per annum. There are Canadian cows that gives more that, and it ought to encourage us Canadians to hear that while it only takes from 22 to 23 lbs. of our cows' milk to make a pound of butter, it takes 27 to 28 lbs of Danish cows' milk to do the same thing. The average delivery of milk is 9,000 lbs. a day, which is not surprising, as there are 800 cows, but observe this : it is the average ; consequently, if these 800 cows yield this daily, is makes 3,285,000 lbs of milk yearly, equal to 4,105 lbs. of milk per cow.

The cooperative creamery of Falleshaale is patronised by 332 farmers, with 1,700 cows, i. e., 6 to each farmer ; 20,800 lbs. of milk are delivered daily, from which they make 800 lbs. of butter.

Hyortebjery creamery receives 10,000 lbs. of milk a day from 126 patrons. The one at Ponderby, kept by Madlle Syre Dam Gaard, turns out 220 lbs. of butter daily.

Every fortnight, the cows, whose milk is taken at M. Busk's creamery, are examined by veterinary surgeons. We are far from that as you know. This company receives 50,000 lbs. of milk a day.

We now want to know if this cooperative system is applicable here. I remark that the Danish farmers do not, individually, keep more cows than we, that they are scattered about here and there, and that we are pretty nearly in the same condition.

I believe it would be easy to find, within a radius of 4 miles, 100 farmers with 10 cows each, and each worth $50.00.

Well ; let these 100 farmers each subscribe fifty dollars, payable in from 2 to 3 years, and we have a sum of $5,000 with which to build an excellent combined butter- and cheese-factory, which will permit us to watch the market, to sell butter when it pays well, or cheese when that answers better.

Here is a table that will explain in a few words my ideas:

TABLE.

SHOWING THE REVENUE OF A COOPERATIVE COMBINED CHEESE-AND BUTTER-FACTORY.

100 farmers, at $50 ..... $5,000.00
This will build a combined factory, with ice-houses, implements, cemented floor, etc.

100 farmers furnishing each 10 cows ..... 1,000 cows.
1,000 cows at 15 lbs. of milk a day each ..... 15,000 lbs.
15,000 lbs. of milk for the winter, 210 days ..... 3,150,000 lbs.
This gives. 3,150 lbs per cow.
3,150,000 lbs. of milk—23 lbs. to the pound of butter... 136,955 lbs.
136,955 lbs. of butter, at 3 cts for making $4,108.65
$4,108.65 divided by 210 gives a daily return of 19.56

Receipts $4,108.65

EXPENDITURE.

136,955 lbs. of butter at 70 lbs. per tub require 2,000 tubs at 30 cts	$600.00
Maker's wages $2.00 a day—210 days	420.00
Wages of 2 assts. at $1.50 a day—210 days	305.00
Fuel	100.00
Oil etc	100.00
Calico, parchment paper, salt	200.00
Ice	150.00
5 carters at $2.00 each $10.00—$10.00 for 210 days	2,100.00
	$3,975.00

Receipts $4,108.65
Expenses 3,975.00

Net Profit $133.65

N. B.—With this balance a competent and conscientious inspector can be paid a proper salary.

We saw just now that the daily income was $19.56. If the factory receives 15,000 lbs. of milk a day, I do not think it would be hard to find 5 carters for it at $2.00 the load of 3,000 lbs., since in some places milk is carted at 3½ cents the cental, or $1.35 the 3,000 lbs., for which I allow $2.00. So that, as you see, with the profit, made out of the cost of manufacture, the whole of the milk can be delivered, you will not lose an hour's work on your farms, and a balance of $133.65 remains to the good.

That which encourages me, Messrs. Patrons, in addressing you on this project of cooperative associations, is that it is begining to be felt in this province that we shall never succeed in putting the best dairy products on the English market except through

the instrumentality of large factories; and in my opinion, cooperative associations are the best means of attaining our end, since they abolish the distance between patron and factory. It is high time to think of this, on account of the strong competition that has arison in the English market against us from more than 20 foreign countries.

If you find yourselves, 20 of you, on the Bonsecours market at Montreal, each with a load of butter, you won't hear a single buyer exclaim: "Which of you has a lot of bad butter to sell me?" Still less will you hear that on the English market, for in England a "*delicate appreciation of fine flavour*" (1) occupies a distinguished position.

And remember, Gentlemen, that the following countries send to England the quantity of butter noted below:

	Cwts.
Russia	53,880
Sweden	267,401
Norway	22,576
Denmark	934,787
Germany	164,485
Holland	142,811
Belgium	34,049
France	468,317
United-States	22,930
Other foreign countries	1,131
Jersey, Guernsey, etc	310
Bengal	1,672
South Australia	1,825
Victoria	105,994
New South Wales	19,805
New-Zealand	41,815
Canada	43,160
Other English possessions	26
Total	2,327,475

Or $62,067,485.93 worth of butter, of which Canada only contributes about $1,000,000 worth.

As you see, the prospect is good, and, as Mr Lister, an English exporter of dairy-implements observed so sensibly yesterday, England has her eye on us; adding that she is always ready to remember that we are her cousins; but I am in fear of one thing; if we send her bad butter or bad cheese, she will cast aside the bonds of relationship with us, and turn to some other countries for her supplies.

Then, let us look to ourselves!

Here, I leave you, hoping that you bear me no ill will, Gentlemen, as I leave you in the millions, butter, milk, and cream. Thanks, Gentlemen.

N. B.—Since we farmers are about to imitate the Danish farmers, why should

(1) A free translation of the uncomplimentary word *gourmandise*. A. R. J. F.

not our Canadian Government imitate the Danish government? We should not be so exacting, since we should be satisfied with a premium of 2 cts a pound for export-butter, while every one knows that both the Australian and Danish governments are giving 4cts a pound.

M. Taché.—As the proprietor of several creameries, I should not like to see Dr Grignon's lecture appear in our report without making some remarks on it, not so much in contradiction of his plan, as in the rectification of some of his calculations. Some of his figures strike me as being too high, others as too low. In some cases, Dr Grignon exaggerates the receipts, in others, much to his credit, he devotes too great a sum to the expenditure; and it is certain that acting upon these data may lead to disappointing results.

The hundred farmers he takes as an example are to subscribe $50 a piece, forming a capital-stock of $5,000. If they were to lend out their money at 6 p. c., they would receive a return of $300 a year, and that without risk, while according to Dr Grignon's estimate, the creamery would only bring in $133 profit. Acting upon these data and accepting his figures, farmers would do better by lending their money at 6 p. c. than by running the risks of the enterprise he proposes.

Dr *Grignon.*—I did not propose my plan as a positive law; I only offered it for discussion. M. Taché says that the profits are only $133.00, but does he reckon the cartage of the milk as worth nothing? The farmer who lives 4 or 5 miles from the factory, and loses half a day every day in carting his milk, should he reckon nothing for the time thus saved? The $2,100.00 saved by the cartage of the milk should be reckoned as profit.

If you like it better, don't have the milk carted, and use this money for three or four years to supply the outlay made in the construction of the building. And when you have brought round (refait) your expenditure, you will have your milk carted, and those who live 4 or 5 miles from the factory will find they have made an excellent investment.

Mr. Barnard.—I must support Dr Grignon's plan. It must be observed that it is not so easy to lend money at 6 p. c. with perfect security. And will you not admit that it would be worth something to get rid of the small factories, and to have instead one of the first class? Would it not be greatly to the advantage of the dairy-trade at large? I leave these remarks for your consideration.

M. Taché.—I limited myself to the statement that some of the data were too high and others too low, and that, on the whole, the figures were likely to lead to mistakes. For instance, there is not one factory in the province that receives 3 millions of pounds of milk, and not ten that receive half that quantity, so I find the amount of the receipts exorbitant. On the other hand, Dr Grignon proposes that the farmers should spend $2,100.00 on the cartage of the milk; it is too much. All that I meant to say is, that we must not be guided by this table.

M. Barnard.—I am speaking of the factory of M. Chapais. It has paid be-

tween 40 p. c. and 75 p. c. of dividends yearly; and there has been no attempt at unfair competition; every one is satisfied.

M. Taché.—What price do they pay for making at St-Denis?

M. Chapais.—We pay 2 cts a pound for the cheese made, and we cart the milk.

M. Taché.—It is of importance in this discussion, for you know that the greater number of the factories of the province only get 1¼ cent, others less, and the most favoured 1½ cent a pound. These things ought to be borne in mind.

Mr. Barnard.—True, but none of these factories, except the St. Denis one, cart the milk.

ADDRESS OF THE REV. FATHER LACASSE.

Mr. President and Gentlemen,

My dear farmers, whom I love so much, I am glad to see you here in such numbers to-night, and I congratulate you on the great attention you have paid to the addresses given at this convention. It is a proof that you understand your own interests, your own advantages. I trust that, before long, agriculture will be held in honour in the province of Quebec as it used to be in the ancient times.

I will relate to you a little anecdote to show you how farming was honoured in the days of the Roman Republic. I learned this story at college, one Thursday, when I was making a translation—as a punishment.

There was once an old Roman named Crescinus, who, by good farming, had made his little field yield crops the double of what his neighbours grew. He was prosecuted, under the pretext that he had bewitched the crops! In those days, it was not as it is now, for every one believed in witchcraft and sorcery, and so highly was agriculture venerated at Rome, that any one who caused damage to the crops was regarded as a murderer and suffered death as such.

Summoned before the court, Crescinus, as he appeared before the judge, conceived the idea of holding a sort of agricultural exhibition. Accordingly, he took to the Forum, where all causes were tried, his implements and stock, himself pleading his own cause. Mounting on the beam of his plough, he addressed the court in these words: "You accuse me of having employed spells in agriculture. Shall I show you the spells I employ? Look at my heavy ploughs, my harrows, and my oxen. View my daughter, study her horny hands, it is they that have cultivated the lettuces you like so much! They seek my life.....If I could show you my sweat, my vigils, passed in my fields while my neighbours were sleeping.....For that, for these labours that produce your food, you wish to slay me.

"I have no fear of death; look at these scars; they will show you that old Crescinus once did his duty on the battle-field, when he was fighting in the front ranks. You desire my death, so be it; but on one condition: Set fire to my farm-implements, and let them compose the funeral pyre on which old Crescinus shall find an end worthy of his life. After I am dead, let them take my ashes and spread them over the fields of my neighbours as manure." These lofty words were

warmly applauded, and one of the Consuls, kissing Crescinus' hand, asked for the hand of his daughter for his son. You probably think that Crescinus eagerly accepted the alliance of the Consul; by no means! he refused it. He told the Consul that, if he wish to unite the pair, he must make the young man become a farmer. It was not, he said, the part of a farmer's daughter to lower her dignity by becoming the wife of the son of a Consul, but the Consul's son must endeavour to raise himself to the level of Crescinus, the farmer, his daughter!

Doubtless, the Consul's son took lessons in agriculture from the father of Mademoiselle Crescina, and this was, we may suppose, the first school of agriculture ever heard of.

Then, let every one put his hand to the wheel to advance along the road of progress the car of agriculture.

Every family should send at least the oldest of the sons to an agricultural school, and, on his return home, he should teach his brothers the things he had learnt there. One great thing is taught in these schools: book-keeping. This is a practice much neglected by our people of to-day. How many farmers, now exiles in the States, would still be in possession of their farms and be living prosperously in their own country, if they had kept accounts. They would soon have discovered that they were spending more than their income, and would have drawn in their horns. Economy is too much neglected among us. I knew a man who was getting four or five hundred dollars a year more from his farm than it used to return, and who, in spite of that, was poorer than he used to be. Why? Because he was extravagant. How many of our fellow-countrymen, for want of the practice of economy, are now enriching with their sweat the land of the stranger who scoffs at them!

I pray all present to set an example of this virtue. Accustom yourselves, you and your children, to practise economy. This year, in one of our finest parishes, thirty-six farms were for sale; thirty-six farms passing into the hands of strangers by contract of redemption (*réméré*). Is not this sad? Cannot a stop be put to it?

CLOSE OF THE CONVENTION.

The President.—The fifteenth annual Convention of the Dairymen's Association of the Province of Quebec is now at an end. Those who have attended all its sessions during the past two busy days, must have been convinced of the importance of this society. It was founded, fifteen years ago, by a band of devoted patriots, some of whom, Messrs. Barnard, Taché and Brodeur, I see here to-night. (Cheers.) You may well be glad, gentlemen, your labours have prospered and the harvest is rich.

This association was founded with the purest agricultural objects, and the patriots who founded it 15 years ago, did so because they saw that the future of Quebec depended upon dairying. Since its first days, it has neglected nothing that might assure the progress of that industry. It established the dairy-school at St. Hyacinthe to supply the factories with the best of makers. We have now, in the

province, a great number of factories, and the goods they turn out are more and more in request on the English market.

The Association perceived that by continuing the development of cheese-making, the market would shortly be over-supplied; wherefore, it persuaded the people to turn their attention to butter.

We passed resolutions, at our last conventions and in the dairy-comitia of the past few years, begging the government to provide "refrigerators" to deliver our butters in England in a fresh state. Two years ago, we sent delegates to address the dealers of Montreal, asking them to join us in our petition to the government. The reply was, that it was useless to try to sell Canada butter on the English market, as it was not liked there. This refusal of the dealers did not discourage us, and we continued our labours; now, we have succeeded in obtaining that which we sought.

And the results, do you ask for them? In 1894, we exported 32,000 tubs of butter; last year we sent abroad 69,800. Now, we have shown what we can do, and this year the export has reached 157,000 tubs. The export of 1894 returned us $392,000.00; last year, it amounted to $870,000.00, and this year the figures are $1,900,000.00.

Such is the work done by the Dairymen's Association of the Province of Quebec. If the farmers and makers will allow themselves to be guided by that body, we shall, before the expiration of five years, be exporting to Europe more than ten million dollars' worth of butter a year.

We were told: "All very well; but with your butter you will destroy the cheese-trade." To show you the error of this statement, I need only say that, this year, we have exported twelve million dollars' worth of cheese, against ten million dollars' worth last year.

I beg to offer, on the part of the Association and the board of directors, our sincere thanks to the good people of Joliette. I said just now, at the superb banquet given us by your Municipal Council, that we did not dream of such a splendid reception when we visited your lovely town. You lent us this pretty hall as a place of meeting, and all your people have, so to speak, carried us in their arms ever since we arrived here. You have recalled that frank and pleasant French politeness, which remains the distinctive characteristic of our Canadian families.

Thanks, then, to the farmers of this district, who have so sedulously listened to the lectures given here.

Thanks to the fair dames of Joliette, who have honoured us with their presence, and by watching our deliberations have set a fresh example to the families of our farmers.

The next Convention will be held at Nicolet, and your charming reception of our Association, encourages us to bid you—not *adieu*, but *au plaisir de vous revoir!*

Our Secretary is about to display to us, as a close to the evening's pleasure, the wonders of the microscope as illustrated by the "Magic Lantern."

THE INFECTION OF MILK BY MICROBES.

A lecture, by M. E. Castel ; illustrated by 36 Magic-lantern slides.

Mr. President and Gentlemen,

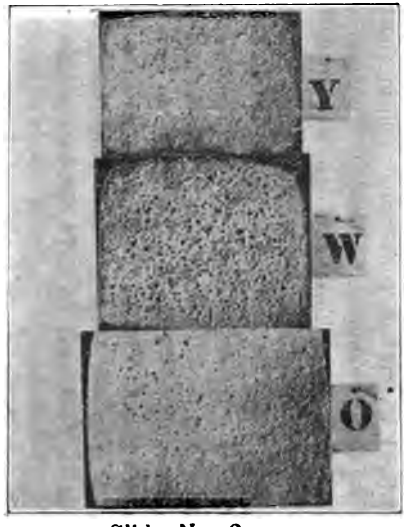
The first idea of this lecture occurred to me as I was reading the work of Prof. H. L. Russell, the bacteriologist attached to the Dairy-school of Madison, in the 11th and 12th Reports of the Wisconsin Experiment-Station. As the Professor was good enough to entrust to me his photographs and engravings, I was enabled to begin the collection of slides that illustrate this lecture. These I shall display before you, completing the series by some loans I have made from Freudenreich, Fleischman, Bolley, etc., etc.

BACTERIAL INFECTION of MILK

by MICROBES,

Its sources and its relations with
- MILK — flavour and keeping quality.
- CURD
- CHEESE.

Slide No. 1.



Slide No. 2.

The explanations I shall give you, as the slides are passing through the lantern, are almost entirely due to Prof. Russell ; at any rate, his are the plan and divisions of the lecture ; even the title is borrowed from that published by him in the report mentioned above (Slide No. 1.) M. Leclair, as well as M. Vaillancourt, complained, during the convention, about the quantity of bad milk delivered at the factories, and of the share it has in the making of inferior cheese. Here are 3 cheeses (Slide No. 2) which were made from milk sown, purposely, with a microbe that causes gas. Do you honestly think that they are worth the highest market price ? You reply in the negative, do you not ? Well ! the depreciation of the quality of these cheeses is due to the microbes.

MICROBES,

MICROSCOPIC

PLANTS

One single cell,

Lower form

of vegetable life.

BACTERIA,

MOULDS,

YEASTS.

Slide No. 3.

Slide No. 4.

What, then, are the Microbes (Slide No. 3), we so often hear spoken of, and which are crawling along everywhere? Are they members of the animal or of the vegetable kingdom? Formerly they were supposed to be animalculos, but they are now recognised as PLANTS; but plants invisible to the naked eye, needing a powerful microscope to detect them; the tiniest of all plants, consisting of only a single cell. But though they are the lowest forms of vegetable life, their entirety does not the less constitute a flora which we represent to you (Slide No. 4); let us cast a rapid glance at it; it comprises Microbes or Bacteria (a to j), yeasts or leavens (k), and moulds (l-o).

I only repeat their uncouth names that you may learn their signification. We have at: (a) the MICROCOCCI; their name signifies tiny balls (coccum=a berry); (b) DIPLOCOCCI; double balls, in America called Dumb-bells; (c) STREPTOCOCCI, little chains; (a) STAPHYLOCOCCI, bunches of grapes; (e) BACTERIA little, very short sticks; (f) BACILLI, rather longer sticks; (g) SPIRILLI, corkscrews, tiny screws; (h) BACILLI ramified, hair-like; (i) BACILLI with organs of locomotion, with cils or things like the eye-lash, to help them to move; (j) BACILLI with organs of reproduction, spores; they look like pods full of peas, so much do the spores resemble the seed of the pea; (k) YEASTS or LEAVENS, resembling egg-like bacilli, with spores; (l) PENICILLIUM GLAUCUM, a greenish mould (on bread or Stilton cheese); (m) ASPERGILLUS NIGER, a black mould (on lemons or acid media); (n) MUCOR RACEMOSUS, a white mould (on horse dung); (o) OIDIUM LACTIS, a velvety mould on cream.

M. Taché told us, last year at Waterloo, how rapidly these microbes multiply themselves (v. 14th report, D. Ass., p. 167), up to 62,000 times in 24 hours, at a temperature of 77° F.

Slide No. 5.

MILK

free from GERMS

WHERE OR

WHEN AND

HOW

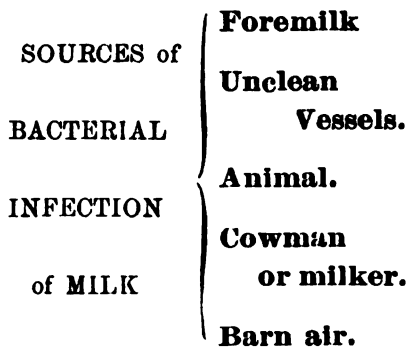
infected by

MICROBES.

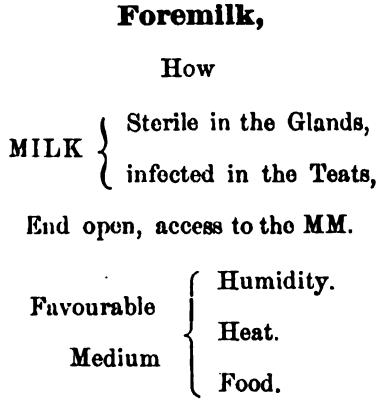
Slide No. 6.

With such a rapidity of multiplication, it is not difficult to imagine to what a degree of infection a milk, once sown with pernicious germs, may arrive. I say "sown", for numerous experiments show that the milk of healthy animals is free from germs as long as it is in the mammary gland (Slide No. 5). If the milk in a healthy teat may, as we shall see further on, meet with microbes, still easier is it to understand that a diseased animal, attacked by tuberculosis or inflammation of the udder (mammitis), may yield a milk unfit for dairy use.

This granted, we must feel that we, who must never send to the factories anything but the most irreproachable milk, cannot avoid devoting earnest study to discover where, when, and how (Slide No. 6) the milk can be infected by microbes. This once done, we shall find out by what means we can prevent this infection or, at least, attenuate its effects, in a way practicable by farmers; and, lastly, we shall examine the effects of this infection on curd and cheese, the practical object of the lesson.



Slide No. 7.



Slide No. 8.

Professor Russell has classified the sources of infection of milk by microbes under five different heads: Foremilk, Unclean vessels, Animal, Milker and Barn Air. We will investigate successively each of these five causes of infection.

FOREMILK.—The first spirts of milk that leave the teat, at the beginning of the act of milking, are called the foremilk. Although the milk of healthy animals is, as we said just now, free from germs, it is a not less constant fact that the first spirts of milk, before even leaving the teat, are infected with numerous germs, and that even when the cow is sound and healthy. This is due to external infection and happens in this way: however perfectly a milking is done, however thoroughly an udder may be drained, a few drops of milk invariably linger in the teat; those who have tried to thoroughly drain a Babcock pipette, after the milk has been poured out, will not be surprised at this; these drops of milk, at the temperature of the cow's body, constitute a moist and warm medium most favourable to the rapid increase of the microbes which may introduce themselves therein. Let us see, then, how they manage to get in.

Slide No. 9.

Foremilk

How much ?

EXPERIMENT. { Only the teats washed

FOREMILK, EACH TEAT	REST OF THE MILKING,
Flask sterilised,	common practice
GERMS	
2800	330
c.	c.
Lactic acid.	Different rennets.

Slide No. 10.

Myriads of bacteria are always spread over the surface of the udder and teat, as we shall see further on ; we observe here (Slide No. 9) a communication between the outside and the inside through the opening (a) at the end of the teat. This passage, which allows the milk to flow during the milking, offers a spacious avenue for the microbes, 25,000 of which can defile abreast on the space of one inch ; to them, this passage is always open ; those who are provided with hairs like eye-lashes, can slip into the inside; once there, they multiply in quantities, I was almost saying in innumerable quantities, but no, their numbers have been counted in manifold experiments, one instance of which will suffice. (Slide No. 10).

After having carefully washed each teat, the first spirts of milk were drawn off into sterilised flasks, containing not a single microbe ; the small mouths of the flasks and the sloping position in which they were held, diminishing as far as possible the other chances of external infection. This done, the rest of the milk was collected as usual. What was the result ? In the first case, were found 2,800 germs to the c c. (cubic centimetre, about as much as would fill a child's thimble) ; in the rest of the milking, there were only 330 to the c. c. ; the first drawn milk contained in itself alone 2,500 to the c. c., the greater part of which were lactic acid ferments, while in the rest the sorts varied.

UNCLEAN VESSELS.

- No filth in them, Germs,
  - Sides, numerous.
  - Seams or joints, Cracks, } Myriads.
- Inefficient Methods of CLEANING.
  - Warm water,
  - Very hot water,
  - Steam or boiling water.

Normand sterilisation.

Slide No. 11.

Slide No. 12.

Unclean vessels.—There we have one of the most influential factors in the infection of milk; and by unclean vessels, (Slide No. 11) we do not mean only those that bear visible traces of filth and excrement, but also those that, in consequence of the usual inefficient methods of cleaning, are covered with living germs, with those organisms that science discovers by the thousand on the walls of the utensils, and by myriads in their cracks and seams. Ordinary cleaning, with hot water, takes off the filth and dirt, and with them the great bulk of microbes, but, even then, forests of them remain, which nothing but a minute cleaning with boiling water, or, still better, with steam, can destroy. Again, these strong remedies must be *applied at some length;* the steam, too, must be applied in a close vessel, and under a pressure of at least 10 lbs; otherwise, the living germs might indeed be destroyed but the spores would remain uninjured. Such treatment may appear to many to be exacting and impracticable, and yet the Norman peasant-women, in the butter-renowned district of Isigny, have known for many a day that it was highly advantageous to pass their dairy utensils over burning *braise.* Thus, they practised sterilisation in advance of Pasteur! Look at the representation (Slide No. 12) of a bacillus heated up to 224° F. for five minutes. Observe the black points in the midst of the tiny white sticks.

Slide No 13.

UNCLEAN VESSELS.

Experimental milking. { Udder, hands washed, Foremilk thrown away, milk at 50°,

COVERED MILK-PAILS.

cleansed,

1° as usual, 2° with steam, ½ H.

GERMS

4265 c. c. 165

68–75o

23 hours, 28 ½ hrs.

Slide No 14.

Here is another representation (Slide No. 13); another bacillus with large spores that has been submitted to a temperature of 248° F. for ten minutes, in a sample of milk. You may again see the same black spots, the spores, which have withstood the heat as did the others; the spores can stand heat much better than the microbes themselves can; this shows clearly the necessity of continuing the application of a high temperature for a longer time in order to succeed in sterilising the vessels.

What is the importance of this cause of infection? It is easy to find out by studying the following experiment (Slide No. 14), in which the milking is done under the same conditions: covered pails, udder and milker's hands washed, first milk thrown away, milk cooled at once to 50° F. The only difference consist in the fact that the milk was collected: one part in a pail cleaned as usual; the other, in a pail subjected for half an hour to the action of steam. In the latter, there were only 165 germs in a c. c., while in the former, there were 4265 in the same volume. Placed in the same pails in a room where the temperature was maintained at from 68° to 75° F., the milk in the sterilised pail kept without souring 5½ hours longer than the other.

ANIMAL.

Hair—Dust—Microbes,

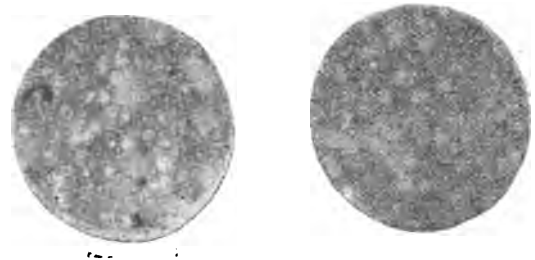
Milking, shakes Udder—Flank,

Dust, Microbes, PAIL.

COWS, { Cow-house, / Pasture.

STRAINERS. Microbes—Spores,

MOISTENING.



Slide No. 15.

Slide No. 16.

Animal.—The third cause of infection. The silky coat of the cow is always full of particles of dust, to which innumerable bacteria are attached. Hair, dust, and bacteria, shaken off by the motion of milking, fall into the pail and infect the milk. In the cowhouse, if pains are not taken to clean them carefully, the under parts of the animals are often made filthy by their droppings, which the increased feeding of recent years (so says Russell) makes more fluid and more fermentable. Just so in the pasture, where cows wander through pools, the stagnant matter of which is, so to speak, a broth most favourable to the production of microbes. The real quantity of impurities of every kind, arising from this source of infection, must strike any one who is present at the reception of milk at one of our factories, and casts a glance at the bottom of the cans, or at the strainer of the receiving vat. This strainer catches the filth that has remained 12 or 15 hours in the milk, but nothing will catch the microbes; filters themselves will not, much less strainers. Here is a first view (Slide No. 16) illustrating the 3rd experiment made by Prof Russell, to show the advantage of the practice so strongly recommended now-a-days, of moistening the flanks and udder of the cow, before milking her, to prevent the dust from falling into the pail.

		NUMBER of microbes fallen in a minute into a pail of 10 inches.		
E.	6/11	16400	2600	85 %
E.	10/11	4010	1860	54 %
E.	"	1700	560	66 %
E.	3/3	2700	330	88 %
P.	23/9	3260	114	96 %

Slide No. 17.

Slide No. 18.

And here is the table (S. No. 17), in which these experiments are condensed ; it gives the approximate number of bacteria deposited in a minute on a surface of 78 square inches, 10 inches milk pail. The 3rd column shows the figures found in the usual condition, and the fourth shows those in the case where the flanks and the udder of the cow had been moistened.

The fourth experiment (March 3rd) is illustrated by the slide 18. In both cases, the precaution of moistening has ensured a diminution of the number of microbes : from 66% in the first to 88% in the second. This is worth while doing. Brushing, currying, are all right, but not sufficient, for if the flanks and the udder remain dry, every shake during milking will make the particles that are detached from the skin fall into the pail. When the skin has been previously brushed over, there need be no great washing done ; a gentle moistening of the udder and flank will be enough to prevent the dust from falling during the milking, for it is ascertained that even violent movements cannot dislodge bacteria from a damp surface. It is for this purpose that it is recommended that the surface of those parts of the cow that are over the pail during the milking, should be thoroughly moistened.

MILKER.

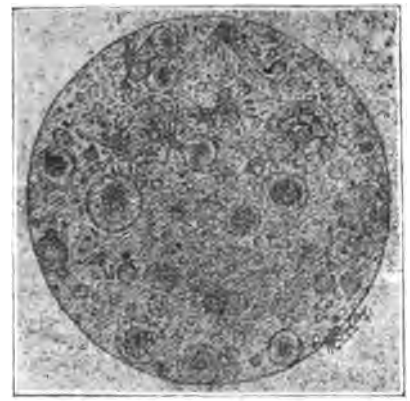
Hands,

Clothings,

Outer garment.

HOW { the experiments are made, / microbes are counted.

Culture Plate.



Slide No. 19.

Slide No. 20.

Milker.—If it is a matter of importance to prevent dirt and dust detached from the cow's body from falling into the milk, by the same reason it is right to see that the person of the milker does not become a source of infection. Before beginning to milk, then, soap and hot water must be copiously applied to the hands. The importance of clean hands was demonstrated by Freudenreich, after a plan by Guillebeau; thanks to this elementary precaution, he succeeded in reducing to 200 per c.c. the number of bacteria in some milk drawn into a sterilised jar. But before washing his hands, the milker should take care that his clothing is entirely freed from dirt and bits of straw, which are not seldom seen on persons, otherwise cleanly, when they have just been feeding the stock. And for this reason, in some well managed cowhouses, it is the custom to make the milker wear a blouse over his other clothes, and this is kept clean for that purpose.

But, you will say, how do you count the microbes? There are several ways; the slide No. 20 illustrates the following way, and represents a gelatine plate, at the bottom of a covered and sterilised dish; exposed for 30 seconds to the air under the flank of a milked cow, it caught a great number of germs, each of which formed a colony. Eleven of them were described by Bolley. Knowing how many germs fell in half a minute on this plate, the surface measurement of which is known, it is easy to reckon how many of them would fall into a pail 10 inches in diameter during a milking occupying 10 minutes.

BARN AIR

inseparable from the 4 preceding sources,

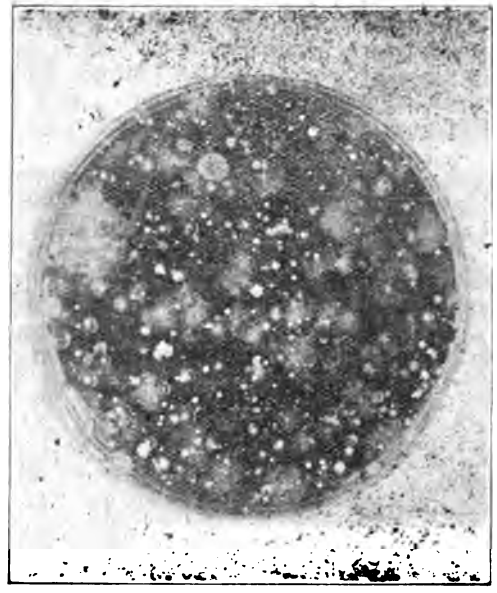
HAY, STRAW, FODDER, } Dry, { Dust, Microbes,

160,000 org. p. m. in Pail,

No dry fodder

at the moment of milking.

Slide No. 21



Slide No. 22.

Barn Air.—It is difficult to distinguish the influence of this factor from that of other sources of infection (Slide No. 21) ; still, there is no doubt that, when given at the time of milking, some foods have a marked influence on the number of bacteria that the air of the cowhouse contains, and, consequently on the bacterial contents of the milk. When we give dry hay, straw, or coarse fodder to the stock, the air of the cowhouse is very much more heavily charged with particles of dust, to which microbes are attached. The figure on Slide No. 22 represents a gelatine plate, exposed in the cowhouse just as the cattle were being fed on dry hay ; it shows that 160,000 germs were falling every minute on a surface representing an ordinary milk-pail. This clearly demonstrates the danger of milking, as is often done, immediately after having fed the cows. For all these bacteria that are then floating about in the air, fall with the dust, and can hardly do otherwise than tumble into the milk. It is thus the bacilli of hay and other forms analogous, infect the milk, which is a full explanation of the reason why the trade is so much opposed to the making of "fodder" cheese in spring and autumn.

Slide No. 23.

Preliminary precautions.

FOREMILK	Throw away the first spirts,
UNCLEAN VESSELS,	Boiling water preferably steam,
ANIMAL,	Clean—Moisten,
MILKER,	Hands—Clothing,
BARN AIR,	Neither dry fodder nor dry litter, at milking time,
	Take the milk away at once.

Slide No. 24.

But it would be easy enough to remedy this, by milking before feeding the dry fodder, or by waiting to milk till a few minutes after the cows have been fed, so as to give the dust and the bacteria with which it is laden time to settle again. Here is another figure (Slide 23), which will help you to understand the advantage of this simple precaution. One of the plates was exposed at the time of the feeding, and the other 5 minutes after it. In the former case (left hand plate), 375 colonies were gathered, and in the second (right hand plate), only 104. This is another instance of the difference a trifle more or less of precaution can make.

Preliminary precautions.—(Slide 24).—We will now point out some precautions to be taken to prevent infection arising from each of the 5 causes enumerated. The number of bacteria in a sample of milk will be sensibly diminished :

1. By rejecting the first spirts from each teat, in order to prevent the infection of the foremilk.
2. By using either truly boiling water, or steam, applied for a considerable time....., in rinsing and by utilising the germ-killing properties of sunlight in the draining of the vessels.
3. By keeping the cows clean, and taking care to lightly moisten the udder and flank before milking, so that the dust stuck on to them may not be dislodged by the jolts the udder gets during the milking.

Slide No. 25.

EFFECTS

OF THE

Above preliminary precautions.

	p c c.	
No. 1		No. 2
Oct. 15500		330
Feb. 7680		120 98 %.

Photomicrography,

Milk No. 2 preserved
24 Hrs longer.

Slide No. 26.

4. By seeing that the milkers take the greatest possible care to keep their hands and clothing exquisitely clean.

5. Lastly, by never giving the cows, just before milking, either for food or litter, any dry fodder, and by leaving the milk as short a time as possible exposed to the dust of the cowhouse. Here is a last figure (Slide No. 25) which abridges an experiment in which in one part all the above enumerated precautions were used, and in the other none of them. The difference in the number of the microbes is 98 %. The milk collected with care, held only 120 per c. c., while the milk of the general herd, mixed and collected without precaution, contained 7.680 (Slide 26). The former kept 24 hours longer than the latter. Surely this is worth while, and speaking practically, does it not signify that milk, refused at the factory on a certain Monday morning, for instance, would have been accepted, if a little more trouble than usual had been expended on it.

Subsequent

PRECAUTIONS,

Straining,

Aerating,

Cooling.

Slide No. 27.

Slide No. 28.

Subsequent precautions.—Let us now say a word or two on the precautions long since recommended by the Dairymen's Association, in its "Instructions to patrons on the care of milk" (Bulletin No. 8, illustrated, distributed gratis to all members of the Association) These precautions may be stated in three words: strain, aerate, cool; (Slide No. 27) a *threefold operation* that can at present be done in one, thanks to the perfected apparatus we now possess. There are many kinds of strainers, aerators, strainer-aerators, and refrigerators; but it seems that the palm ought to belong to the apparatus that enables us to perform at once, and that most successfully, these three operations: strain, aerate, cool. Here (Slide No. 28) is an apparatus that, all at once, strains the milk, aerates it, and cools it. It *strains* the milk to free it from foreign matters whether animal or vegetable, whose presence is always dangerous; it *aerates* the milk to rid it of animal or other smells, which it may have absorbed from these foreign matters, from the atmosphere or otherwise; it *cools* it, lastly, to prevent the multiplication or increase of bacteria.

Floating

CURD,

Gassy MILK,

MICROBES,

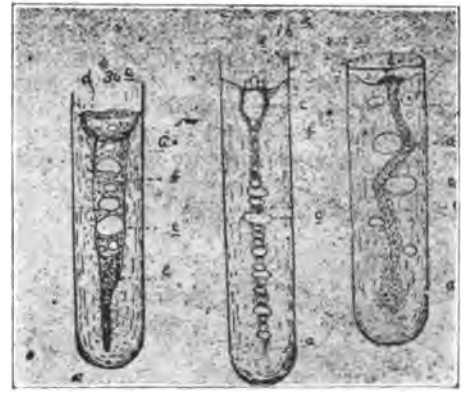
GAS CO_2 milk sugar.

Temperature

Heating up Curd

Promotes growth.

Slide No. 29.



Slide No. 30.

The origin of the bacterial infection of milk being settled, and the fact having been proved that, in some cases, it may have the effect of reducing by 24 hours the time during which milk will keep fresh, let us now examine its *influence on curd* (Slide No. 29.) Gassy milk is well known to our makers, and is a very frequent subject of complaint in the weekly reports of our inspectors. These gassy fermentations have often been attributed to bad water, bad food or careless treatment of the milk. Although, generally speaking, there may be some truth in each of these explanations, the exact cause of the trouble is far from being perfectly understood; certain forms of bacteria are its real cause. Once in the milk, they attack its sugar, and decompose it into gassy products, among which predominate carbonic acid and hydrogen. These bacteria are rather common; it is not by any means through the food or the water given to the cows that they introduce themselves into the milk, but only by carelessness in milking and in the treatment of the milk after it has left the cow. These facts have long been known in Europe; the recent works of Profs. Russell and Bolley show us that certain American bacteria possess the power of manufacturing gas. Here is a figure (Slide No. 30) which illustrates their work, and displays these bacteria in full activity.

FLOATING CURD,

Experiments

Biologic (microbic)

origin of **pin-holes,**

Filth on Flank, Udder.

No. 4, curd, foremilk.

5, do , same milk.

Slide No. 31.

Slide No. 32.

By numerous experiments, reported in Bulletin No. 21, of the Experiment Station of Fargo, North-Dakota, Prof. Bolley has settled the question as to the microbic origin of floating curd or "pin-holes" in cheese, and the close relationship of the bacteria that cause them with the filth on the cow's flanks and udder (Slide No 31). Here is an illustration from his work (Slide No. 32) ; the piece of curd No. 4, leathery floating curd full of gas-holes, and No. 5, good solid curd with very few pin-holes ; both come from the milk of the same cow, and, still more, from the same milking ; but No. 4 was made from the foremilk, received without any precautions in an ordinary pail ; while No. 5 was made from the strippings of the same milking, but received in a sterilised flask, after the flank and the udder of the cow had been washed and wiped ; the other pieces of curd are the result of analogous experiments. No. 3 is the product of milk sown with a culture of bacillus 36c (see Slide No. 30), found on the dirty udder of a cow.

"THOUSAND-HOLE"

Swollen Cheese,

Bacillus Schafferi,

Potatoes Schaffer, Lard,

Bacillus Mammitis-Mastitis,

B. Schafferi related to B. C. C.

Slide No. 33.

Slide No. 34.

In the manufacture of Gruyère cheese, in Switzerland, they had long ago recognised the evil influence of certain lactic ferments, possessing the property of decomposing the milk sugar and from it producing gas. Sown in a sweetened broth, these bacteria had produced gas as you saw in the last but one slide put before you. So, when one sees in Switzerland cheeses that are swollen and full of abnormal holes, such as are called "thousand-holes" ("mille-trous"), see Slide No. 33, by the cheesemakers of that country, one need not hesitate to attribute the cause to the presence of bacteria of that order. Some have been isolated by Freudenreich, who gave the name of Schaffer to one of them; this bacillus is very common, and is frequently found on potatoes, which led these learned professors to condemn an old custom among the Swiss cowmen of rubbing their hands with potato-porridge before milking. A relationship, too, has been observed between this bacillus and the Bacterium *coli commune*; hence, an earnest recommendation not to allow any excrementitious matter to fall into the milk. To this class of gas-producing bacilli, belong also some species that are found in cases of mammites or mastite. Slide No. 34, now before you, illustrates an experiment made in Switzerland on milk infected with one of these bacilli.

GASSY FERMENTATIONS,

American Cheddar making,

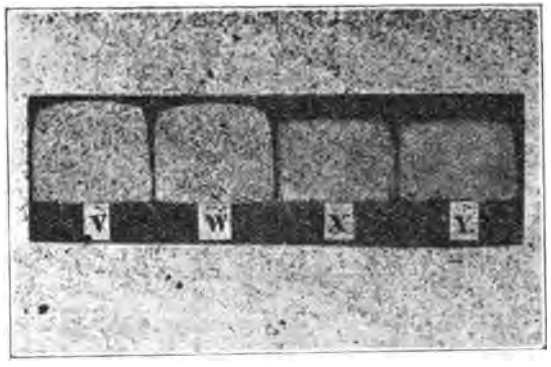
"Pin-holes,"

Russell's experiment

26/7/94.

Spongy texture,

Poorer flavour.



Slide No. 35.

Slide No. 36.

It remains to show that the trouble pointed out by the Swiss makers is present in the making of Cheddar cheese such as we turn out. For this end, Prof. Russell undertook a series of experiments (Slide No. 35) which are described in the 12th Report of the Madison Station, Wis. (p. 140.) The pasteurisation of the milk, or the use of certain antiseptics, greatly diminished, or caused to disappear, the bacteria, and with them vanished the "pin-holes"; but with these bad bacteria the good ones disappeared too, and the quality of the cheese suffered; we must therefore keep to the preventive means noted above. In his experiments, Prof. Russell also discovered, in these bacteria, the cause of certain bad smells, unfortunately too common in many cheeseries. Here is a photograph of some cheeses made by the Professor in the course of his experiments. (Slide No. 36).—V and W were made without acid in the curd; in X and Y the acid was developed as in our Cheddar process. V and X were made from normal milk; W and Y from the same milk, but after the addition of a gas-producing bacillus. The numerous holes in V have a mechanical origin, due to the absence of acid; the appearance of W is due partly to mechanical cavities, partly to "pin-holes." In X and Y, we see the effects of the gas-producing bacilli in the Cheddar process. The numerous "pin-holes" in Y are typical of a gassy cheese. The effect of acid on the spongy character of gassy cheese will be observed on comparing the cheeses W and Y.

If, thanks to these slides, I have succeeded in impressing on the eyes of some of you any lasting image of the extreme importance of the necessity of exercising great attention to cleanliness in the care of milk, I shall be amply repaid for my trouble.

REPORT OF THE AUDITORS.

M. J. D. Guay read the following report:

We, the undersigned, appointed as auditors of the accounts of the Dairymen's Association, beg to say that we have examined the account-books and the vouchers which were handed to us by the Secretary, and have found them perfectly correct;

The receipts of the Association for the year amount to $10,625.86, and the expenditure to $10,423.98, leaving a balance to good of $201.88.

We think it right to make the following suggestions to the Board of Directors:

1. Seeing the great increase in the affairs of the Association, a system of book-keeping by double entry should be adopted; an accountant might be requested to prepare a system of that kind of book-keeping, and to show the secretary-treasurer of the Association how to carry out the proposed reforms.

2. The auditors for the coming year should be appointed at this convention by the Board of Directors, so as to be able to hold the audit in future before the next meeting, which would give our successors an opportunity of following the proceedings of the Association.

3. It would also be desirable for the secretary to have a book of uniform blank receipt forms, to be signed by all to whom he pays money; these receipts will serve him as vouchers for all the sums paid otherwise than by cheque and greatly simplify the business of the auditors in future.

Joliette, 3rd December, 1896. (Signed) J. D. GUAY, MILTON MacDONALD, } Auditors.

Receipts and Expenditure of the Association

(FOR THE YEAR 1896).

RECEIPTS

ASSOCIATION:	Balance in hand	$ 155.49	
	1—Subscriptions received	973.00	
	2—Sale of reports and books	59.25	
	3—Divers	55 35	
	4—Government grant	2,000.00	
			3,243.09
SYNDICATES:	Balance in hand	499.27	
	Government grant (on account)	2,000.00	
			2,499.27
SCHOOL:	Credit note	6.03	
	Special grant for enlarging	2,900.00	
	Annual grant	2,000.00	
		4,906.03	
	Minus deficit 1895	22.53	
		4,883.50	
			4,883.50
			$10,625.86

EXPENDITURE

ASSOCIATION :			
1—Printing		708.32	
2— Paper, etc	224.28		
2— Stamps	177.91		
		402.19	
3—Travelling expenses		366.05	
4—Convention do		637.02	
5— Secretary-Treasurer—Salary	660 00		
5— Assistant do do	240.00		
		900.00	
6—Purchase of books and papers		34.38	
7—Extra expenses		34.73	
			3,082.69
SYNDICATES :			
Salaries		825.00	
Travelling expenses		1,267.17	
			2,092.17
SCHOOL :			
Enlargement and repairs		3,569.78	
Annual expenses		1,679.34	
			5,249.12
			10,423.98
To balance in hand			201.88
			$10,625.86

RECAPITULATION

	SOCIÉTÉ	SYNDICATS	ÉCOLE
Receipts	3,243.09	2,499.27	4,883.50
Expenditure	3,082.69	2,092.17	5,249.12
Surplus	160.40	407.10	
		160.40	
Deficit			365.62
		567.50	
		365.62	
Balance in hand		201.88	

SYNOPTIC TABLE OF THE

NOS. Of the Syndicate.	NOS. Of the Division.	NAMES OF THE INSPECTORS — CHEESERIES.	NUMBER OF Factories.	Inspection days.	Short visits.	PROOFS OF MILK. Lactodensimeter.	PROOFS OF MILK. Babcock.	Letters written.	Fines imposed.	Patrons.	Cows.	Order numbers.
1	4	St. Pierre, Germain	.....	.....	.....	.....	.....	.....	.....	.....	.....	1
1	5	Pothier, B.-A	.....	.....	.....	.....	.....	.....	.....	.....	.....	2
2	5	Parent, Wm	23	95	168	2539	965	.....	.....	764	5278	3
3	5	Désautels, A.-E	.....	.....	.....	.....	.....	.....	.....	.....	.....	4
1	6	Wilkins, Chas	.....	.....	.....	.....	.....	.....	.....	.....	.....	5
2	6	Palmer, W.-H	.....	.....	.....	.....	.....	.....	.....	.....	.....	6
3	6	Painchaud, J.-L	16	62	29	915	350	10	1	359	1899	7
1	7	Woodward, A.-W	.....	.....	.....	.....	.....	.....	.....	.....	.....	8
1	8	Standish, Ch.-E	23	128	147	5692	1312	92	8	1267	6377	9
2	8	Robillard, F	18	116	90	3811	886	47	7	636	3820	10
1	9	Aubin, Sam	.....	.....	.....	.....	.....	.....	.....	.....	.....	11
1	10	Allard, J.-H	23	128	.....	3079	2862	20	1	793	.....	12
2	10	Ferguson, Geo.-W	22	156	150	.....	8200	.....	.....	.....	.....	13
3	10	Wherry, Rob	25	156	56	2479	2479	40	2	482	.....	14
4	10	Macfarlane, Arth	.....	.....	.....	.....	.....	.....	.....	.....	.....	15
1	11 & 12	Lacoste, D	.....	.....	.....	.....	.....	.....	.....	.....	.....	16
1	12	Lloyd, A.-S	22	147	55	5348	4114	22	3	988	7179	17
1	13	Ferguson, A.-M	15	67	65	1328	2308	4	3	228	.....	18
2	13	Bennet, Chs.-S	15	82	81	1128	1908	5	.....	313	.....	19
1	14	Tremblay, P	17	111	60	1857	631	4	1	375	2546	20
3	14	Hudon, J.-E	.....	.....	.....	.....	.....	.....	.....	.....	.....	21
4	14	Gagnon, Alf	19	124	72	2179	2132	3	.....	465	2132	22
1	15	Trudel, F.-X -O	28	125	81	3421	1179	8	.....	1126	5058	23
2	15	Guertin, Alf	16	.....	.....	.....	.....	17	.....	382	.....	24
1	16	Lacourcière, L.-P	.....	.....	.....	.....	.....	.....	.....	.....	.....	25
1	17	Parent, D.-J	18	101	68	3024	427	.....	.....	609	.....	26
1	19	Ross, John	21	150	500	1292	1512	23	2	504	5325	27
		CREAMERIES.										
1	20	Desrochers, Gab	.....	.....	.....	.....	.....	.....	.....	.....	.....	28

INSPECTORS' REPORTS.

Order numbers.	Number of factories reporting.	TOTALS OF			Price of making per lb.	AVERAGE.									
		Milk delivered.	Creameries and Cheeseries.	Money.*		Milk per cow.	Butter or Cheese per 100 lbs. milk.	Lbs. of milk per lb. of cheese or butter.	MILK IN BASIN		MONEY PER *			PRICE OF	
									Lactodensi-meter.	Babcock.	Patron.	Cows.	100 lbs. milk.	Cheese.	Butter.
1	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	23	10,345,478	1,042,508	83826 76	1.43	1960	10.1	9.9	31.6	4.13	109 72	15 88	0.81	8.04	
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	.....	.....	.....	.....	1.33	.....	.....	.....	31.3	3.98	.....	.....	.....	.....	.....
8	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	4	2,065,665	207,469	17219 68	1.⅛	2321	10.1	9.9	29.4	3.68	97 85	19 34	0.83	8.30	
10	15	5,217,914	523,368	43172 65	1.⅛	1781	10.1	9.9	30.7	3.92	92 48	14 74	0.81	8.25	
11	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	10	5,024,142	470,349	37671 87	1.⅛	.....	9.3	10.7	29.6	4.15	184 66	.....	0.75	8.0	
15	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	4	3,901,127	379,239	27969 51	1.5	2169	9.7	10.3	31.5	3.69	162 61	15 12	0.71	7.3	
18	10	6,984,313	668,620	55764 63	1.⅛	.....	9.5	10.4	31.6	3.64	200 60	.....	0.79	8.3	
19	13	6,925,782	678,186	56947 45	1.⅛	.....	9.6	10.2	32.2	3.56	149 12	.....	0.82	8.3	
20	16	5,927,690	592,534	46743 43	1.⅛	2328	9.99	10.01	31.5	4.03	124 65	18 36	0.78	7.88	
21	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	19	4,274,995	475,114	32347 18	1.⅛	2005	11.1	9 0	32.5	3.95	69 50	15 17	0.75	6.8	
23	7	2,838,128	286,154	23013 66	1.27	1773	10.08	9.9	31.0	4.1	79 35	14 38	0.81	8.4	
24	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	21	9,930,327	962,456	79206 71	.....	1862	9.6	10.3	.....	.....	157 75	14 87	0.79	8.2	
28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

* Receipts shows in this table are gross receipts, that is, the price of making should be deducted therefrom.

SUPPLEMENT

TO THE

FIFTEENTH ANNUAL REPORT

OF THE

DAIRYMEN'S ASSOCIATION.

REPORT

BY MM. E. BOURBEAU, INSPECTOR-GENERAL, AND J. A. PLAMONDON, ASST. INSPECTOR-GENERAL OF SYNDICATES, ON THEIR TOUR THROUGH ONTARIO.

To the Members of the Board of Directors of the Dairymen's Association of the Province of Quebec.

Gentlemen,

We have the honour to submit to you the following report of our tour through the province of Ontario, at the commencement of last season, in order to inform ourselves as to the progress of our neighbours in dairying, and especially as to the working of the large cheeseries and creameries, by which it would seem to us advisable to replace some of our smaller factories.

Starting on May 12th, we returned on the 21st.

We first enquired about the cartage of milk to factories, the state of the roads, the price for making, and the manner of selling the goods.

We visited Brockville, Napanee, Guelph, Atwood, Stratford, London, Ingersoll and Woodstock.

At Brockville, we saw the Willow cheesery. In this part, they do not seem to approve of carting milk to the factory by contract, as, though it had been carried on for some considerable time, it had just been given up, and the proprietor seemed to be satisfied with this decision.

14th May, Napanee.—We met several proprietors and presidents of factories. Mr. Whalen, who has a factory at Centreville, receives an average of 20,000 lbs. of milk a day; he is paid 1⅞ ct. a pound for making cheese. In return for this, he carts the milk, makes the cheese and pays for all the supplies, as well as the cost of sales; he is satisfied with this manner of carting the milk.

Mr. James Burns has two cheeseries, with an average of 10,000 lbs. of milk daily; in one he is paid for making 1⅞ ct., in the other 2 cts., under the same arrangement as Mr. Whalen.

Mr. Jas. Barry, president of a cooperative cheesery at Tamworth, told us that his factory turns out 625 tons of cheese a year ; it carts the milk, receiving 1⅞ ct. a pound for the cheese made, out of which the maker gets 0.725 ct. a pound. This factory pays a dividend of 7o/o regularly.

Mr. W. F. Gerones receives 18,000 lbs. of milk a day ; making-price 1⅞ per lb. ; he carts the milk.

Mr. Geo. Clealls makes from 125 to 150 tons of cheese a year ; receives 1¾ ct. for everything, including cartage of milk which costs him $1.20 a ton.

All those who are interested in this business in the district of Napanee are in favour of the factory carting the milk.

May 15th, Guelph.—Professor Dean showed us over the dairy at the Experiment Station of Ontario, and replied readily to all our questions. The dairy-school had only 75 pupils last winter. After the school closes, Prof. Dean devotes his time to experimental research. As regards cheese-making, he studies : the effect of the richness of milk on the quantity and quality of the cheese ; the ripening of the milk before renneting ; the temperature of the milk at the renneting ; the best dose of rennet ; the acidity at the time of drawing of the whey ; the grinding of the curd ; the temperature of the going to press and salting ; as to butter : the effects of the richness of the milk on separator-skimming ; of the temperature of the milk ; the temperature during the ripening of the cream ; its pasteurisation, and the ferments of pure culture as compared with home-made ferments ; the greater or lesser effects of the richness of the cream, of the washing of the butter, and the different percentages of salt. We must wait for Prof. Dean's report before we can know the results he has obtained from these investigations.

16th, Elmira.—A visit to the Dominion and Newry cheeseries. The former is a cooperative factory on a very large scale ; to-day, it received 24,000 lbs. of milk, but in the height of the season, it receives as much as 35,000 lbs. The factory collects the milk ; its price for making is 1.35 cts. a lb. to its shareholders, to the other patrons, 1.45 cts. ; the maker receives 55 cts. for each 100 lbs. of cheese made ; he supplies all the requisites except boxes ; it is calculated that the milk-collecting costs 32 cts. per 100 lbs. Milk is paid for according to its contents in fat ; the test is made once a month. In 1895, the quantity of milk required to make a pound of cheese was 10.9 lbs. The condition in which this factory was kept was very good. We found there a novelty : a piggery, attached to the factory for the purpose of utilising, on the spot and in good condition, the whey. The patrons' cans are no longer used for carrying home the whey, and, thanks to that, a considerable improvement is found in the condition of the milk. The first year, the piggery returned to the company about $1,000.00 ; since that time, it is no longer in their hands, but is let by auction, the highest bidder to a contractor ; the whey, too, is treated in the same way, and the highest bidder takes the cheesery (*piggery ?*). This year, the whey sold at $4.00 the ton of cheese made ; according to our calcula-

tion, that made the whey cost 2⅕ cts. the 100 lbs. The pork, they told us, cost $3.50 the 100 lbs., alive, and sold for $3.60 to $4.00.

The Newry cheesery belongs to Mr. John Morrison; it takes in 14,000 lbs. of milk daily in summer; the patrons do the cartage of the milk in vehicles furnished by the proprietor of the factory. This is the best kept cheesery we saw in our travels.

The Hon. Thos. Ballantyne owns the Black-Creek factory, fitted for both cheese-and butter-making, and possessing the best installation we have ever seen. It works throughout the year, making cheese in summer and butter in winter; the average receipts of milk in summer are 23,000 lbs. a day. The price for making cheese, cartage of milk included, is 1.85 cts. the cental; the maker's salary is 65 cents for every cental made, he paying any help he may require. This price is high, but when engaging Mr. Geo. H. Barr, one of the best butter-and cheese-makers in Ontario, Mr. Ballantyne knew that he could not hire a first-rate maker without paying him his price.

There, again, a piggery is attached to the factory to secure the consumption of the whey *in situ*. As the patrons' cans are returned empty, the carters, as soon has they have poured out the milk, throw in some cold water, which, tossed about by jolting on the return journey, rinses the cans and hands them over to their owners nearly clean.

Both for cheese and butter, the milk is paid for according to its richness. The cheeses are so made as to weigh about 80 lbs. each when ripe. The temperature is admirably regulated by reservoirs of ice rather high in position. We remarked in this, and in several other factories, a curd-mill, made by O. Barnard & Co., Oxford Mills, Ont., which seemed to work to perfection.

About 600 pigs are yearly fattened here. Pork cost $2.35 in 1892, and $2.34 in 1893 by the cental, the whey not included. In these figures, the grain comes to $1.95; the balance applied to general expenses. We also visited Mr. Ballantyne's farm.

19th, The Harrietville Cheesery.—The factory belongs to Mr. R. Facey, and to-day it received 35,000 lbs. of milk; it receives as much as 45,000 lbs. in the height of the summer, and is, very reasonably, said to be the largest cheesery in the world. The patrons pay a cent a pound for making, and it gives them their cheese boxed. The patrons pay the insurance on the cheese, the secretary's salary and their seller's commission; in this district, the patrons cart the milk.

Beachville Factory.—This is a creamery combined with a cheesery. The proprietor takes 4 cts. a pound for making butter, and 1½ ct. for cheese, all included, even the cartage of milk. The skim-milk and whey are returned to the patrons. This factory receives about 20,000 lbs. of milk a day.

We were present at the sessions of the Cheese-board, at Napanee, Ingersoll and Woodstock; but as it was only the opening of the season, the chief point of interest was its organisation. The general opinion in Ontario favours the exclusive

sale of goods in the market; this ensures a public price, which serves as a *réclame* in England; this is an advantage we, in Quebec, have only in one district, Bedford, which sold its cheese this year at Ontario price. But, you will say: even with cheese-boards, all our districts could not get the Ontario prices; true, not at first, in the cheese-boards, the "selections of the factories" always get the highest prices, and every maker strives to advance rapidly so as to get his share of the "selections of factories;" the cheese-boards then are, from our point of view, a means of education and a *réclame*. (1) They have also introduced into Ontario several other appreciable reforms; to the west of Brockville, for instance, all the cheese is sold "delivered at the factory," and it was not without astonishment that we found there all the buyers favourable to this method of sale (so different from ours); but almost all the buyers we met in Ontario had been formerly makers, true experts, to whose taste the exporters could confide their interests; this is again an element of progress, for these buyers are not only perfectly competent to point out to the makers the defects in their cheese, but also to explain to them their causes, and their remedy.

In all these visits, as well as in those we paid to Mr. Patullo, president of the "Ontario Good Roads Association," to Mr. Wheaton, secretary of the "Dairymen's Association of West-Ontario," and to the office of "the Farmer's Advocate," London, we were invariably most agreeably received, and it is for us a pleasant duty to acknowledge it, and to return our sincere thanks to our entertainers.

In conclusion, we beg to state, gentlemen, that we found the Ontario cheese more uniform than that of our province, especially as regards external appearance, form, size, and the general look of the cheese. With such large factories, the milk of a district is worked up in far fewer factories than with us; it is easy to see that a lot of 800 or 900 cheeses made in a month, by the same competent man, in one sole factory perfectly fitted up, cannot fail to be more uniformly well turned out than if it came from a dozen small establishments, badly equipped, and managed by a half-taught apprentice.

And as regards these large factories in Ontario, they seem to have been specially favoured by the good roads of that province, which enable the proprietors of them to undertake the cartage of milk at reasonable rates. In this way, the patrons need not trouble themselves about the distance between their farms and the factories; for it is not uncommon in Ontario to see vehicles loaded with 4,000 to 6,000 lbs. of milk arrive at the factory from a distance of 6 to 7 miles. Here, it would be impossible to do this, owing to our bad roads, and the only way in which we can see our way to get rid of that plague, the small factories, is to turn our immediate, our serious attention to the improvement of our roads.

The whole respectfully submitted.

(1) Réclame is untranslatable; here it means a mark of estimation, reputation, etc. A. R. J. F

LIST OF PROPRIETORS OR MANAGERS OF CREAMERIES AND CHEESERIES IN THE PROVINCE OF QUEBEC, 1897.

ARGENTEUIL.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	Creameries.	Cheeseries.	Comb cream. and cheeseries
Arundel	Rév. Père Bouchet	Huberdeau	1		
"	Wm. D. Graham, jr.	Arundel		1	
Chatham	Thos. Ross & Son	Hawkesbury, Ont		5	
"	Amédée Leroux	St-Eugène, Ont.		3	
"	W. J. Morrow	St-Andrew's East		1	
"	Hormidas Pilon	St-Philippe d'Argenteuil		1	1
"	Janvier St-Onge	Mabel		1	
"	Xavier Desforges	Greces Point		1	
"	Alfred Sicotte	Pine Hill		1	
"	Cheese Factory Co	Brownsburg		1	
Gore	Joseph Cyr	St-Canute, Deux-Montagnes		1	
Grenville et Augmentation	Thos. Ross & Son	Hawkesbury, Ont.		2	
" "	Joseph Bonhomme	Papineauville, Ottawa		1	
" "	A. F. Arnold	Vankleek Hill, Ont		1	
Harrington	Thos. Ross & Son	Hawkesbury, Ont.		1	
"	" "	"		1	
"	" "	"		1	
Lachute (town)	" "	"	1		
Mille Isles	W. H. Good	Mille Isles		1	
"	Wm. Maxwell	Cambria		1	
St-André	Thos Ross & Son	Hawkesbury, Ont.		1	
"	John F. McLean	St-Andrew's East		1	
"	W. J. Morrow	" "		1	1
St-Jérusalem	Thos. Ross & Son	Hawkesbury, Ont		3	
"	W. J. Morrow	St-Andrew's East		1	
"	Walter Smith	Lachute		1	
		Total	2	33	2

ARTHABASKA.

MUNICIPALITIES.	PROPRIETORS OR MAGAGERS.	ADDRESSES.	C	C	C
Chénier	Philias Laroche	St-Patrick's Hill		1	
"	Onesiphore Lemay	" "		1	
"	Xavier Moreau	" "		1	
"	Anselme Caron	Warwick		1	
"	Zéphirin Genest	St-Patrick's Hill			1
Chester-East	Ferdinand Fortier	Ste-Hélène de Chester		1	
"	Léon Camiré	" "		1	
"	Pierre Dumas	" "		1	
"	Nap Alain	" "		1	
Chester-North	No report				
Chester-West	Brunelle & Vallières	St-Paul de Chester	2		
" "	Achille Galibois	" "		1	
" "	Louis Boulanger	" "		1	
" "	William Moreau	" "		1	
" "	Alexis Roberge	" "		1	
" "	Benjamin Fouquette	" "		1	
" "	Irenée Bergeron	" "		1	
" "	Alphonse Moreau	" "		1	
" "	Xavier Moreau	" "		1	
" "	Joseph Leclerc	" "		1	
" "	Placide Lehoulier	" "		1	
" "	Nap. Brunelle	" "		1	
" "	Narcisse Grenier	Fecteau's Mills (Wolfe)	1		
Stanfold	Edmond Baril	Stanfold		1	
"	Calixte Dion	"		1	
"	Hon. Provencher	"		1	
"	Geo. Blanchette	"		1	
"	Cie de beurre et fromage	"			1
St-Albert de Warwick	Nap. Hébert	St-Albert		1	
St-Christophe	Albert Houle	Arthabaskaville		1	
"	Zéphirin Bergeron	"		1	
		Carry forward	3	26	2

ARTHABASKA—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	3	26	2
St-Christophe	Arthur Leblanc.	Arthabaskaville.		1	
"	Joseph Michel.	"		1	
Ste-Clothilde de Horton.	Hector Michel.	Ste-Clothilde.		1	
Ste-Elizabeth de Warwick	Edouard Desfossés	D'Auteuil		1	
St-Louis de Blandford	Dolphis St-Laurent	St-Valère de Bulstrode.		1	
"	Nap Fortier.	Blandford		1	
St-Norbert	Joseph Prince	East Arthabaska		1	
"	Dolphis Boissonneau.	"		1	
"	David Dumont.	Arthabaskaville		1	
"	Perreault & Ouellet.	East Arthabaskaville			1
St-Rémi de Tingwick	Xavier Moreau.	St Paul de Chester		1	
"	Jos. & Adélard Proulx	St-Rémi de Tingwick		1	
"	Edm. Levasseur	"		1	
St-Valère de Bulstrode	Blanchet & St-Pierre.	St-Valère de Bulstrode.	1	1	
"	Eusèbe Lupien	"		1	
"	Pierre Leclerc et fils.	St-Rosaire		1	
"	Adol. St-Laurent	Walker's Cutting		1	
Ste-Victoire	Paul Tourigny	Victoriaville.		1	
Tingwick	R. D. Larivière.	Trout Brook		1	
"	Geo. Johnson	Castlebar, P. Q.		1	
"	Xavier Moreau.	"		1	
Victoriaville	D. O. Bourbeau	Victoriaville.			1
"	Octave Gaudet	"		1	
Warwick.	Nazaire Vidal	Warwick		1	
"	Cyrille Bergeron.	"		1	
"	George Bergeron.	St-Paul de Chester		1	
Warwick (Village)	Abdon M. Methot	Warwick.			1
		Total	4	50	5

BAGOT.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
Acton	M. McDonald	Acton Vale			1
St-André d'Acton	S. Lapalme	St-Ephrem d'Upton		2	
Ste-Christine	M. McDonald	Acton Vale		1	
"	Cedras Asselin	Ste-Christine		1	
St-Dominique	Harris Brabant	St-Dominique de Bagot		1	
"	Flavien Dupont	St-Liboire		1	
"	M. Larose	St-Dominique		1	
"	Philibert Dussault	St-Dominique de Bagot		1	
"	Emile Chagnon	St-Dominique			1
"	Norbert Fredette	"		1	
"	Fernando Lapalme	St-Liboire			1
St-Ephrem d'Upton	Delphis Chicoine	St-Ephrem d'Upton			1
"	A. Brasseur	"	1		
"	Louis Côté	"	1	1	
Ste-Hélène	F. X. Brunette	Ste-Hélène		1	
"	Michel Houle	"		1	
"	Ant. Sicard	"			1
"	Treffié Lemoine	St-Théodore d'Acton			1
St-Hugues	L. T. Brodeur	St-Hugues			1
"	Syndicat du 4e rang	"			1
"	Adélard Lanoie	"			1
"	Louis Beauregard	Cavignac			1
St-Liboire	F. X. Lajoie	St-Liboire		1	
"	Elz. Rivard, fils	"		1	
"	Jos. Lemonde	"			1
St-Nazaire	Eucha. Lafrance	St-Hyacinthe			1
"	Aurèle Leclerc	St-Nazaire		1	
St-Pie	Elie Lapalme	St-Pie			1
"	Hector Lapalme	"		1	
"	Alph. Morin	"		1	
		Carry forward	2	17	13

BAGOT—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Brought forward	2	17	13
St-Pie.	Gelas St-Michon.	St-Pie.		1	
"	Cléophas Vadnais, fils.	"		1	
Ste-Rosalie.	Jos. B. Grenier.	Ste-Rosalie.		1	
"	Aug. Lemonde.	"			1
St-Simon	Azarie Deslauriers	Clairvaux			1
"	L'Heureux & Tétrault.	St-Simon de Yamaska.		1	
"	Honoré Charland.	"		1	
St-Théodore d'Acton.	Isidore Jodoin.	St-Théodore d'Acton		1	
"	"	"			1
"	Elphège Hétu.	"		1	
"	"	"			1
"	Jacob Laflamme	"			1
"	Adrien Laflamme.	"		1	
"	Joseph Bousquet	"		1	
Upton.	Jean Maurice.	St-Ephrem d'Upton.			1
"	Solas Lapalme.	"	1		1
		Total.	3	26	20

BEAUCE.

Adstock North	Pierre Rancour	Adstock		1	
"	Louis Dostie	"		1	
Aubert Gallion	Philibert Gauthier	St-George Beauce	1		
"	Pierre Morin	St-George East		1	
"	Olivier Caron, père	"		1	
"	Joseph Paquet à Raph.	"		1	
"	John Goslin	"		1	
"	Joseph Bolduc	"		1	
"	Joseph Maheu	"		1	
"	Joseph Poulin	"		1	
"	Bénoni Poulin.	"		1	
		Carry forward	1	10	

BEAUCE—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	1	10	
Aubert Gallion	Joseph Thibodeau	St-George, East		1	
"	Gédéon Roy	"		1	
"	Joseph Busque & Cie	"		1	
"	Arthur Bolduc	"		1	
Aylmer	Nap. Beaudoin	St-Henri, Lévis		1	
"	Massé & Cie	St-Fortunat, Wolfe		1	
Broughton	Vital Champagne	East Broughton		1	
"	Etienne Grégoire	"		2	
"	Thos. Roy, commerçant	"		1	
"	Thos. Roy, 4e rang.	"		1	
"	James Fillion	"		1	
Gayhurst	A. Couture	St-Samuel de Gayhurst		1	
"	Gilbert Dallaire	"		1	
Lambton	Nicholas St-Hilaire	D'Israëli, Wolfe		2	
"	C. B. Lavigne	Lambton		1	
"	J. E Roberge	"			1
Metgermette North	Abra. Poulin	St-Zacharie		1	
Shenley	Nap Beaudoin	St-Henri, Lévis	1		
"	Louis Fortier	St-Honoré		1	
"	Jos. Nadeau, jr	"		1	
"	E. Lavigne	Lambton		1	
"	Clovis Bellegarde	St-Honoré			1
Shenley Dorset Jersey et Marlow	Thomas Maheu	St-Martin		1	
"	Jos. Em. Pelletier	"		1	
Saints Anges	Henri Giguère	Saints Anges		1	
"	Ferd. Mercier	"		1	
"	Gédéon Labbé	"		1	
St-Benoit Labre	Omer Poulin	St-Benoit Labre		1	
St-Côme de Kennebec	Irénée Bélanger	Linière		1	
		Carry forward	2	38	2

BEAUCE—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	2	38	2
St-Côme de Kennebec	Pierre Roberge	Linière		1	
St-Ephrem de Tring	C. E. Pagé & Lacombe	St-Ephrem de Tring	1		
"	J. de L. Taché	Scott Junction	1		
"	Oct Roy	St-Ephrem de Tring		1	
"	Alfred Bisson & Cie	" "		1	
"	Narc. Pomerleau	" "		1	
"	Louis Marcoux & Cie	" "		1	
"	Louis Faucher & Cie	" "		1	
"	Olivier Poulin & Cie	" "			1
St-Elzéar	App. Drouin	St-Elzéar, Beauce		2	
"	Marc Grégoire	St-Séverin		1	
St-Evariste de Forsyth	Lachance & Blais	St-Evariste		1	
"	Labonté & Labonté	"		1	
"	Louis Bernier	"		1	
"	Cyrille Francœur	"		1	
St-François	Rév. Zoël Lambert	St-François, Beauce	1		
"	Joseph Bernard	" "		1	
"	Geo. Veilleux	" "		1	
"	Jean Fortin	" "		1	
"	Vital Pepin	" "		1	
"	Chs. Bolduc	" "		1	
"	Jos. Veilleux	" "		1	
"	Joseph Denis	" "		1	
"	Gédéon Doyon	" "		1	
"	Joseph Roy	" "		1	
"	Joseph Mercier	" "		1	
"	Jean Poirier	" "		1	
"	Nap. Beaudoin	St-Henri, Lévis		1	
St-Frédéric	F. X. Plante	St-Frédéric		2	
"	Hilaire Gilbert	"		1	
"	Joseph Vachon	"		1	
		Carry forward	5	67	3

BEAUCE—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Brought forward	5	67	3
St-Frédéric	Joseph Jacques.	St-Frédéric.		1	
"	Ephrem Lagueux	"		1	
"	E. Gagnon	"		1	
"	Mag. Gravel.	"		1	
St-Joseph	Thomas Doyon	St-Joseph, Beauce.		1	
"	Jos. Lessard, fils Bén	"		1	
"	Vital Roy	"		1	
"	Noël Roy	"		1	
"	Omer Giguère	"		1	
"	Aug. Jacques.	"		1	
"	Ev. Poulin.	"		1	
"	Geo. Cliche	"		1	
St-Joseph (Village)	Morin & Cie.	"		1	
Ste-Marie	Taché & de Bacourt	Scott Junction	1		
"	Avard & Grégoire	La Beauce.		1	
"	Marcoux & Jolicœur	"		2	
"	Marcoux & Cie	"		1	
"	Vital Cliche.	St-Joseph, Beauce		1	
St-Pierre de Broughton.	Alfred Gagné	West Broughton	2	2	
"	Honoré Dubreuil,	"	1	1	
St-Samuel.	No report.				
St Séverin	Louis Nadeau	St-Séverin.		1	
"	Naz. Drouin.	"		1	
"	France Labbé	"		1	
St-Victor de Tring	J. de L. Taché	Scott Junction	1		
"	Mar. Rodrigue & Cie.	St-Victor de Tring		1	
"	Thos. Grondin & Cie.	"		1	
"	Nap Beaudoin.	St-Henri, Lévis.		1	
"	Nap. Mercier.	St-Victor de Tring		1	
"	Jean Renaud & Cie.	"		1	
"	F. X. Plante & Cie	St-Frédéric.		1	
		Total	10	97	3

BEAUHARNOIS.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
Beauharnois	Avila Arel	Beauharnois		1	
Ste-Cécile	Joseph Poirier	Valleyfield		1	
"	Cyrille Hainault	"		1	
St-Clément	Allard & Gendron	St-Clément		1	
"	Octave Allard	"		1	
"	Avila Arel	Beauharnois		1	
St-Etienne	No report.				
St-Louis de Gonzague	Horm. Lepage	St-Louis de Gonzague	1	1	
"	George Gardner	St-Louis Station		1	1
"	Chs. Tait	"		1	
"	John Thompson	"		1	
"	Alex. Lemieux	Landreville		1	
"	James Symons	St-Louis de Gonzague		1	
"	Ant. Sauvé	"		1	
St-Stanislas de Kostka	Thos. Durnin	St-Stanislas de Kostka		1	
"	Wm. Durnin	Landreville		3	
"	Leduc & Cie	St-Stanislas		1	
St-Thimothé	J. A. Clément	St-Thimothé		2	
"	Aug. Crevier	"			1
		Total	1	20	2

BELLECHASSE.

Notre-Dame Auxiliatrice de Buckland	Pitre Fortier	St-Gervais	1		
Roux, Bellechasse and Daaquam	Pierre Larochelle	Buckland	1		
"	Narc. Audet & Cie	St-Magloire	1		
St-Cajetan d'Armagh	Rév. G B. Dionne & Cie	Armagh		1	
"	Lapierre, Gagnon & Cie	"		1	
"	Philibert Langlois	"		1	
St-Charles	Onésime Mercier	St-Charles, Riv. Boyer	1		
St-Etienne de Beaumont	Nap. Beaudoin	St-Henri Lévis		1	
		Carry forward	4	4	

[illegible]

[illegible]						4	4
[illegible]							
[illegible]							
[illegible]							1
[illegible]							
[illegible]							1
[illegible]						1	
[illegible]						1	
[illegible]						1	
[illegible]						1	
[illegible]							
[illegible]							1
[illegible]							1
[illegible]							1
Total						11	9

[illegible]

[illegible]				Bernier en haut		1	
[illegible]				Bernier [illegible]		1	
[illegible]				St-Barthelemi			1
[illegible]				[illegible]			1
[illegible]				Bernier en haut			1
[illegible]	Xavier Mayer			St-Barthelemi		1	
[illegible]	[illegible]			[illegible]			1
[illegible]	Jos. Lacoste			St-Cuthbert			1
[illegible]	[illegible]			"		1	
"	Jos. Lemaire			"			1
"	Isaie Marchand			"			1
"	Vve Ant. Robert			"			1
"	Jos. Grégoire			"			1 1
"	Arthur Fournier			"			1
Carry forward						4	7 4

BERTHIER—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	4	7	4
St-Cuthbert	Arsène Mayer	St-Justin, Maskinongé			1
St-Damien	Rémi Charbonneau	St-Gabriel de Brandon.		1	
"	Jos. Boucher.	"		1	
St-Gabriel de Brandon	Jos. Ayotte	St-Norbert.	1		
"	Edwin Remington.	St-Gabriel de Brandon.		1	
"	Norbert Rocheleau.	"		1	
"	Narc Dubeau	"		1	
"	J.-Bte. Barrette.	St-Edmond		1	
St-Gabriel de Brandon, (village).	Louis Jacques	St Gabriel de Brandon		1	
Ste-Geneviève de Berthier	No report				
St-Joseph de Lanoraie	Arthur Ferland.	Lanoraie	1		
"	Adol. Parent.	"	1		
St-Michel des Saints	Léandre Menard	St-Michel des Saints.		1	
"	Tous. Gouin.	St-Zénon		1	
St-Norbert.	S. Denis.	St-Norbert.		1	
"	David Fréchette	"		1	
"	Arcleste Dubeau	"			1
"	Joseph Ayotte	"			1
St-Zénon.	Eust. St-Pierre.	St-Zénon		1	
		Total	7	19	7

BONAVENTURE.

Mann.	No report.				
Maria.	Rév. Jacob Gagné	Maria.		1	
Matapédia.	Denis Richard.	Matapédia.		1	
New Richmond.	Wm. Cyr.	Black Cape		1	
Port Daniel West.	Rév. Aug. Gagnon	Port Daniel East.		1	
Restigouche	No report				
Shoolbred.	Ernest Allard	Robitaille.		1	
		Total		5	

BROME.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
Bolton Eest	George Salls	South Bolton		1	
"	W. Raynolds	"		1	
"	Ludger Bachand	St-Etienne de Bolton		1	
"	J. M. Labelle	Vale Perkins		3	
Bolton West	Allen Kilburn	Foster	1		
"	Rufus Blunt	West Bolton		1	
Brome	R. J Ladd	West Brome	1		
"	Arthur Creddinon	"		1	
"	Jesse Benham	Sweetsburg, Missisquoi		1	
"	J. M. Miltimore	" "		1	
"	Geo. A. Miller	Gilman		1	
"	W. M. Mitchell	Brome Corner		1	
"	Elmore Grimes	"	1		
"	Geo. A. Robb	Iron Hill	1		
"	Ephraim Lapierre	Laroche	1		
"	Mason Woodard	Fulford	1		
Eastman	Arthur J. Whitehead	Eastman	1		
"	Euclide Phaneuf	"		1	
Farnham East	Jos. Daniel	Sweetsburg, Missisquoi	1		
"	Phi. Domingue	Adamsville	1		
"	Alph. Boright	East Farnham		1	
"	T Allen Hawk	Brigham		1	
"	Thos. L. Burnett	Farnham Centre			1
"	Thos. Hart	Adamsville			1
"	Mallon Toof	Sweetsburg, Missisquoi			1
Knowlton	Malcolm Ray	Knowlton		1	
Potton					
"	Walter Lesnard	West Potton		1	
"	Siméon Sargent	Mansonville		1	
"	Sam. Elkins	" Station		1	
"	Alfred Bailey	" "		1	
		Carry forward	9	20	3

BROME—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	9	20	3
Potton	Jos. Labelle	Vale Perkins			1
Sutton	H. O. Wales.	Sutton Junction		1	
"	Milton Darbe	North Sutton		1	
"	Eph. Charbonneau	Sutton		1	
"	Gasper Willey.	Abercorn		1	
"	A. A. Esty	"		1	
"	Wallace Leonard.	Glen Sutton		1	
"	G. H. Boright	Sutton			1
		Total	9	26	5

CHAMBLY.

Longueuil	No report				
St-Basile le Grand.	Rocheleau & Laporte.	St-Basile le Grand	1		
"	Avila Trudeau, fils	St-Mathias, Rouville		1	
St-Bruno	Rév. N. A. Valois	St-Bruno		1	
Ste-Famille de Boucherville	Albert Dumler.	Boucherville		1	
St Hubert	Frs. Robert	St-Hubert	1		
		Total	2	3	

CHAMPLAIN.

Valmont	No report				
La Visitation de Champlain	L. P. Carignan	Champlain		1	
"	Jacques Dontigny	"		1	
N.-D. du Mont Carmel	Philippe Rheault.	Valmont		1	
"	Joseph Cossette & Lord.	"		1	
"	Luc Ducharme	"			1
St-Adelphe	P. N. Chailly	St-Stanislas		1	
		Carry forward		5	1

CHAMPLAIN—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward		5	1
St-Adelphe	A. Lambert	St-Tite		1	
Ste-Anne de la Pérade	N. E. Clément.	2 and 4 Foundling st., Montreal	1		
"	Gilbert Latour	Ste-Anne de la Pérade			1
"	Elzéar Ricard	"		1	
"	Honoré Gendron	"		1	
"	Victor Leduc	"		1	
"	Michel Loranger	"		1	
"	Jos. Godin.	"		1	
"	Edouard Douville	"		1	
"	Eus. Lanouette.	"		1	
St. F. X. de Batiscan	Chs Gouin	Batiscan		1	
"	Ludger Duval	"		1	
"	Ernest Tourigny	"		1	
"	Ovide Lacourcière.	"			1
"	Louis Léger & Cie	"		1	
"	Pierre Laporte	"			1
Ste-Geneviève de Batiscan	Ernest Jacob	Ste-Geneviève de Batiscan	1	1	
" "	Léopold et Arthur Marchand	" "		1	
" "	Hubert Veillette	" "		1	
" "	Ed. Dessureau	" "		1	
" "	Eph. Dessureau.	" "		1	
St-Jacques des Piles	Aristide Lambert	St-Tite		1	
St-Luc	Anselme Beaudoin	Vincennes		1	
"	Octave O. Beaudoin	"		1	
"	Geo. Goyette	"		1	
"	Pierre Marchand.	"		1	
"	Hubert Nobert	"		1	
Ste-Marie du Cap de la Madeleine	Xavier Lapointe, fils	Cap de la Madeleine		1	
St-Maurice	Maxime Cassette	Valmont		1	
		Carry forward	2	30	4

CHAMPLAIN—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	2	30	4
St-Maurice	Frs Ducharme	St-Maurice		1	
"	Ant. Laprise	"		1	
"	Oscar Nobert	"			1
St-Narcisse	Isidore Derouin	St-Narcisse		1	
"	Dosithé Cossette	"		1	
"	Benj. Boulanger	"		1	
"	Trefflé Trudel	"			1
St-Prosper	Cloutier & Lacourcière	St-Prosper		1	
"	Wm Lacoursière	"		1	
"	Alfred Trudel	"			1
St-Sèverin	Narc. B. Bordeleau	Proulxville		1	
"	Maj. Bordeleau	"		1	
"	Trefflé Veillette	"		1	
"	Elie Mongrain	"		1	
St-Stanislas	Joseph Jacob	St-Stanislas	1		
"	Ovide M. Trudel	"	1		
"	Alfred Trudel	"	1	1	
Ste-Thècle	Chs. Audy	Ste-Thècle		1	
"	Alfred Trudel	St-Prosper		1	
St-Théophile du Lac.	Trefflé Trudel	St-Narcisse		1	
St-Tite	Paquin & Jacob	St-Tite		1	
"	Théod. Maurault	"		1	
"	Mar. Massicotte	"		1	
"	Frs. Marchand	"		1	
"	Aris. Lambert	"			1
		Total	5	49	8

CHARLEVOIX.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
Baie St-Paul (Village)	Chs. Martel	Baie St-Paul			1
Les Eboulements	Médéric Bouchard	Les Eboulements		1	
"	Alexis Tremblay	"		1	
"	Chs. Tremblay	"		1	
Settrington	Eva. Demeules	St-Hilarion		1	
"	Phy. Guay	"		1	
Ste-Agnès de Murray Bay	Frs. Harvey	Ste-Agnès de Charlevoix		1	
" "	Bon. Desgagnés	" "		1	
" "	Jos. Bergeron	" "		1	
" "	Thos. Bouchard	" "		1	
St-Etienne de Malbaie	Jules Bradet	Malbaie		2	
" "	Odilon Pilot	"		1	
St-Fidèle de Mont Murray	Antoine Perron	St-Fidèle		1	
St-Irénée	Ferd. Gauthier	St-Irénée		1	
"	Elie Boucher	"		1	
St-Louis, Ile aux Coudres	Louis Perron	Ile aux Coudres		1	
" "	Geo. Tremblay	"		1	
St-Pierre et St-Paul de la [Baie St-Paul.	Henri Coté	Dufour		1	
" "	Wilfrid Simard	Baie St-Paul		1	
" "	Wm Tremblay	"		1	
" "	Gédéon Perron	Clairvaux de Charlevoix		1	
" "	Jos. Simard	Baie St-Paul		1	
" "	Benj. Fortin	La Mare (Charlevoix)		1	
" "	Jérémie Menard	Baie St-Paul		1	
" "	Chs. Martel	"			1
St-Siméon	Rév. M. P. Hudon	St-Siméon		1	
St-Urbain	Chs. Fortin	St-Urbain		1	
		Total		26	2

CHATEAUGUAY.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
Ormstown (village)	Macpherson & Ferguson	Ormstown			1
St-Antoine Abbé	James McGill	Stockwell	1		
Ste-Clothilde	No report				
St-Jean Chrysostôme	Max. Huberdeau	St-Chrysostôme	1		
"	John Boyd	"			1
"	Jos. Tourangeau	"			1
"	Macpherson & Ferguson	Huntingdon			1
St-Joachim de Chateauguay	Narc. R. Laberge	Chateauguay		1	
St-Malachie d'Ormstown	Allan Grove Co.	Ormstown		3	
" "	James Sangster	"		1	
" "	C of Farmers	"		1	
" "	J. W. Sadler	"		1	
" "	John Dunning	Allan's Corner		1	
Ste-Martine	Ed. McGowan	Ste-Martine		2	
"	Etienne Marleau	Howick		1	
Ste-Philomène	Frs. P. Laberge	Ste-Philomène		1	
St-Urbain Premier	Jos. A. Defayette	St-Urbain de Chateauguay		1	
"	Ed. McGowan	Ste-Martine		1	
Très-St-Sacrement	J. S. Dunning	Allan's Corner		2	
"	John Thompson	North Georgetown		1	
"	Robert Anderson	Cairnside		1	
"	Macpherson & Ferguson	Huntingdon		1	
"	John McGregor	Riverfield			1
		Total	2	19	5

CHICOUTIMI.

Bagotville	Firmin Paradis	Bagotville	1		
"	Elie Tremblay	"		1	
"	Jos. Buteau	"		1	
"	Wilfrid Côté	"		1	
		Carry forward	1	3	

CHICOUTIMI—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Brought forward	1	3	
Bourget	L. P. Godin	Rivière à l'Ours		1	
"	Alex. Larouche	St-Charles Borromée		1	
Chicoutimi	Jean Perron	Chicoutimi	1	1	
"	Jean Girard	Jonquières		1	
"	Louis Guay	Chicoutimi		1	
"	Frs. Brassard	"		1	
"	Rich. Gagnon	"		1	
"	Elie Tremblay	"		1	
"	Jos. Maltais	"			1
"	Félix Boily	"			1
Grande Baie	No report				
N. D. de Laterrière	Louis Aubin	Laterrière	1		
"	Tremblay & Girard	"		1	
"	Arthur Godreau	"		1	
"	Alfred Tremblay	"			1
St-Dominique de Jonquières	Paschal Bergeron	Jonquières		1	
" "	Chs. Fortin	"		1	
" "	Nérée Bergeron	"		1	
" "	Jos. Gagnon	"		1	
" "	Angers & Brassard	"			1
St-Cyriac	Lazare Vaillancourt	"		1	
St-Fulgence	Jos. Harvey, fils	L'Anse au foin		1	
St-Jean	Zéph. Desgagnés et al.	L'Anse St-Jean		1	
Tremblay	Ernest Gravel	Tremblay		1	
"	Honoré Côté	"		1	
"	Ovide Villeneuve	"		1	
"	Jos. Bouchard	"		1	
"	Xavier Savard	"		1	
"	Louis Boucher	"	1	1	
		Total	4	26	4

COMPTON.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
Auckland	Joseph Roy	St-Malo		3	
"	Jos. Brault.	"		1	
Bury	Wm. Bacon	Robinson		1	
"	N. St-François	"		1	
Chesham	A. E. Dumoulin	N.-D. des Bois		1	
"	Bruno Côté	"		1	
Clifton	Louis Ladouceur	St-Edwidge		1	
"	Boulé & Gérin.	"			1
Clifton East	E. S. Lussier	Clifton East		1	
"	Joseph Viens.	Charrington		1	
Cookshire.	Rufus H. Pope, M.P	Cookshire.	1		
Ditton et Clinton	Jos. Brillon.	La Patrie		1	
Eaton	John Mackie	Birchton		1	
"	Amos Hanley	Eaton		1	
Emberton	Rév. A. Tremblay	Chartierville		1	
Hereford	Aurèle Choquette	Paquette.		1	
"	Wm. Melrose	Perryborough		1	
"	Aug. Gérin	Coaticook, Stanstead		1	
"	Frontier Manfg Co	Hereford		1	
"	J. P. Dupuis	St-Herménégilde, Stanstead			1
Marston-South	Nap. Lemieux.	Lac Mégantic		1	
Newport.	E. S. Lussier	Clifton East		1	
Sawyerville	Jos. Boyd	Sawyerville	1		
Waterville	No report.				
Westbury	Ferd. Fontaine.	Weedon, Wolfe		1	
Whitton-North	No report.				
Winslow-North	Omer Lacombe.	Lambton, Beauce	1		
		Total	3	22	2

DEUX-MONTAGNES.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADRESSES.	C	C	C	C
L'Annonciation	RR. PP. Trappistes	La Trappe, Oka	1			
"	Wm. Lalonde	Oka	1			
"	Raphaël Charest.	"	1			
St-Augustin	E. Lanthier	St-Augustin	1			
"	Osias Duquet	" (Village)				1
"	F. X. Charbonneau	Petit Brûlé				1
St-Benoit	Samuel Fauteux	St-Benoit	1			
"	Jos. Cyr	St-Canute		1		
"	Anthime Pilon	St-Hermas		1		
St-Canute	Jos. Cyr.	St-Canute				1
"	M. Rochon	"		1		
St-Eustache	Emile Laurin	St-Eustache	1			
"	Oscar Paquette.	"	1			
"	John Hamilton.	Grande Frenière	1			
"	Théodule Lesage	St-Eustache	1			
"	(Village) Binette & Brunet	"	1			
St-Hermas	B. Beauchamp, M.P.P.	St-Hermas		1		
"	Honoré Pagé	"		1		
"	Robert Roy	"		1		
"	F. Cyr	"		1		
"	Olier Lefebvre	"		1		
St-Joseph du Lac	J. B. Damour	St-Joseph du Lac	1			
"	McCall & Ladouceur	"		1		
Ste-Monique	Olivier Legault.	Ste-Scholastique				1
St-Placide	Alph. Dubreuil	St-Placide	1			
Ste-Scholastique	Cie de Beurrerie	Belle Rivière.	1			
"	Jos. Dumoulin	Ste-Scholastique	1			
"	Félix Laframboise	Mirabel	1			
"	Cie de Fromagerie	"		1		
"	Cie de Fromagerie	Ste-Scholastique.		1		
"	France Blondin & Cie.	"		1		
"	(Village). Jos. Dumoulin.	"	1			
		Total	16	12	4	

DORCHESTER.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
St-Anselme	Jos. Baillargeon	St-Anselme		1	
"	Amédée Grégoire.	"		1	
"	Nap. Beaudoin	St-Henri, Lévis		1	
St-Bernard	J. de L Taché	Scott Junction, Beauce.	1		
"	Chs Belliveau	St-Bernard, Dorchester		2	
Ste-Claire	Geo. Richard	Ste-Claire		1	
"	Alph. Bernier	"		1	
"	Alph. Cayouette	"		1	
"	Clotaire Lessard	St-Joseph, Beauce		1	
St-Edouard de Frampton	J. B. Blais	Frampton		1	
"	Nap. Dion	"		1	
"	Jos. Lacasse	"		1	
"	Jos. Audet, 7e rang	"		1	
"	Jean Grégoire	Sts-Anges, Beauce		1	
"	Lary Colgan	Cranbourne		1	
"	James Kinsella	Springbrook		1	
Ste-Germaine du Lac Etchemin	Jos. Bégin	Lac Etchemin		1	
"	M. Larochelle	"		1	
Ste-Hénédine	Gabriel Dumont & Cie.	Ste-Hénédine	1		
"	Octave Martineau	"		1	
"	F. X. Roy	"		1	
"	Albert L. Morin	"			1
St Isidore	J. de L. Taché	Scott Junction	2		
Ste-Justine	Ant. Giguère	Langevin		1	
"	Philias Tanguay	"		1	
"	Achille Poliquin	Ste-Rose de Watford		1	
"	J. L. Lamontagne	" "		1	
St-Léon de Standon	Pierre Chouinard	Standon		1	
"	Jos. Grenier	"		1	
"	Joseph Fouché	"		1	
		Carry forward	4	27	1

DORCHESTER—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	4	27	1
St-Malachie	Nap. Beaudoin	St-Henri de Lévis		1	
"	Job Mercier	St-Anges, Beauce		1	
Ste-Marguerite	David Cloutier	Ham Sud, Wolfe		1	
"	Jos. Maure	Ste-Marguerite		1	
"	Jean Trachy	Ste-Hénédine		1	
"	Nap. Beaudoin	St-Henri de Lévis		1	
St-Maxime	J. de L. Taché	Scott Junction, Beauce	1		
St-Odilon de Cranbourne	Linière Maheux	St-Odilon		1	
"	Jean Foucher	La Beauce		1	
Watford-Ouest	Ludger Caron	St-Prosper		1	
		Total	5	36	1

DRUMMOND.

Durham	Dudley & Co	Ulverton			1
"	Clovis Duguay	L'Avenir		1	
Durham South	J. B. J. Préfontaine	Durham South	1		
"	James Dowd	"		1	
"	David Hyde	"		1	
"	Henry Coté	Danby		1	
Grantham	Joseph Jones	Drummondville		1	
"	Art. Marcotte	"		1	
"	Benoit Lafond	"		1	
Kingsey-Falls	T. D. McCallum	Danville, Richmond	1		
"	Rév. G. E. Caron	Kingsey Falls		1	
Kingsey	Jos. Lefebvre	French Village	1	1	
"	Geo Benoit	"		1	
"	Proulx & Lefebvre	"		1	
"	Amédée Francœur	"		1	
L'Avenir	Alf. Provencher	L'Avenir		1	
"	Duguay & Cie	French Village		1	
		Carry forward	2	15	1

DRUMMOND—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	2	15	1
L'Avenir	Cléophas Dionne	L'Avenir		1	
"	Alex. Charpentier	"		1	
"	J. P. Dionne	Drummonville		1	
"	Jos. Beaulac	L'Avenir		1	
"	Ephrem Charpentier	"		1	
St-Eugène de Grantham	Pierre Plante	St-Eugène de Grantham		1	
St-Germain de Grantham	Houle & Rajotte	St-Germain de Grantham		1	
"	Dontail Dionne	" "		1	
"	Frédéric Moreau	" "		1	
"	Michel Gauthier	" "		1	
"	Olivier Lemaire	" "			1
"	Adélard Lanoie	St-Guillaume d'Upton		1	
Wendover & Simpson	Damien Janelle	St-Cyrille de Wendover		1	
"	Paul Valois	" "		1	
"	Dauplaise & Cie	" "		1	
"	Soc. Beurrerie et fromagerie	" "			1
Wickham	Léon Ball	Wheatland		1	
"	F. Provencher	L'Avenir		1	
Wickham West	Jos. Lafrance	St-Hyacinthe			1
		Total	2	31	4

GASPÉ No 1.

Douglas East	No report	
Gaspé Baie Sud	"	
Grande Rivière	"	

GASPÉ No 2.

Grosse Isle	No report	
Havre Aubert	"	
Havre aux Maisons	"	
L'Etang du Nord	"	

Carry forward

GASPÉ No. 3.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Brought forward			
Ste-Anne des Monts	Frs. Lepage	Ste-Anne des Monts	1		1
St-Norbert du Cap Chat	J. Gust. Roy	Cap Chat	1		
" "	George Roy	"	1		
		Total	3		1

HOCHELAGA.

L'Enfant Jésus de la Pointe aux Trembles	No report				
Riv. des Prairies	Alf. Vézina	Riv. des Prairies		1	
Sault au Récollet	No report				
Longue Pointe	"				
St-Léonard de Port Maurice	John McIntosh	Côte St-Michel	1		
Verdun	No report				
		Total	1	1	

HUNTINGDON.

Dundee	Macpherson & Ferguson	Huntingdon		1	
"	D. M. Macpherson	Lancaster, Ont.		1	1
Elgin	Smaill Bros.	Kelso	1		
"	Macpherson & Ferguson	Huntingdon		3	
Franklin	Narc. Beaudin	Russelltown, Chateauguay			1
Godmanchester	Macpherson & Ferguson	Huntingdon		6	
"	W. H. Walker	"		1	
"	R. S. Feeny	"		1	
Havelock	Max Patenaude	Stockwell, Chateauguay	1		
"	N. Beaudin	Russeltown "	1		
"	G. Gembie	" "	1		
Hemmingford	Thomas Boyce	Hemmingford	2		
" (village)	"	"	1		
		Carry forward	7	13	2

HUNTINGDON—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANGES.	ADRESSES.	C	C	C C
		Brought forward	7	13	2
Hinchinbrooke	Geo. W. Loomis	Herdman		3	
"	Macpherson & Ferguson	Huntingdon		4	
"	Martin Connell	Dewittville		1	
"	John A. McDonald	Athelstan			1
"	Farquhar & Oliver	Rockburn			1
Huntingdon	Macpherson & Ferguson	Huntingdon			1
St-Anicet	Masson & Cazn	St-Anicet		1	
"	Syn. de Cultivateurs	Cazaville			1
"	D. M. Macpherson	La Guerre			1
"	"	Port Lewis		3	
"	James Irvine	Dalkeith, Ont		1	
Ste-Barbe	Olivier Hainault	Ste-Barbe		1	
		Total	7	27	7

IBERVILLE.

St-Alexandre	Amb. Labrecque fils	St-Alexandre		1	
"	Narc. Brault fils	"		1	
Ste-Anne de Sabrevois	S. J. Roy	Sabrevois	1		
St-Athanase	Solyme Davignon	St-Athanase		1	
"	Amb. Poirier	"		1	
Ste-Brigide	Osias Archambault	Ste-Brigide			1
"	Godfroy Tessier	"		1	
St-George de Henryville	S. J. Roy	Sabrevois	1		
" "	Léon Bénard & Cie.	Henryville		1	
St-Grégoire	Thos. Barrière	Mount Johnson		1	
"	Michel Monat	"		1	
"	Nap. Pratte	Versailles Sta		1	
St-Sébastien	Pierre Breault fils	St-Sébastien	1		
"	Alphée Lamothe	Pike River, Missisquoi		1	
		Total	3	10	1

JACQUES-CARTIER.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
Ste-Anne de Bellevue	Conrad Vallée	Ste-Anne de Bellevue	1		
Ste-Anne du Bout de l'Isle	Télesphore Madore	" "	1		
Ste-Geneviève	J. B. Meloche fils	Ste-Geneviève	1		
"	Amb. Pilon	"	1		
"	Legault & Frère	"			1
" (village)	J. B. Meloche	"	1		
St-Laurent	Pierre Meloche	St-Laurent	1		
" (ville)	No report				
St-Raphaël de l'Ile Bizard	Nap. Boivin	Isle Bizard	1		
		Total	7		1

JOLIETTE.

Bienheureux Alphonse de [Rodriguez	Geo. E. Trudeau	St-Alphonse		1	
"	Rosario Gervais	St-Jean de Matha		1	
"	Ludger Martineau	Joliette		1	
Joliette	Adol. Omer Parent	Berthierville Co. Berthier			1
St-Ambroise de Kildare	Jos. Breault	Kildare	1		
"	Laporte & Ethier	"	1		
Ste-Béatrix	Alfred Laporte	Ste-Béatrix	1	1	
"	Joseph Laurent	"		1	
"	Théod. Beaudry	"		1	
St-Charles-Borromée	Desrochers & Masse	St-Thomas		1	
"	Jos. Arnault	St-Charles Borromée		1	
"	O. Mercier	" "	1		
St-Côme	Lacasse & Labrie	St-Côme		1	
"	Dr. Gauthier	"		1	
Ste-Elizabeth	P. L. Gadoury	Ste-Elizabeth			1
"	Horm Dudemaine	"			1
"	Wilfrid Gingras	St-Justin, Maskinongé		1	
		Carry forward	4	11	3

JOLIETTE—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	4	11	3
St-Elizabeth	Moïse Roy	St-Jean de Matha		1	
"	J. Laferrière	St-Barthélemi, Berthier		1	
"	Jos. Clément	Ste-Elizabeth		1	
Ste-Emélie de l'Energie	Onésime Beaudry	Ste-Emélie de l'Energie		1	
"	Jos. Coutu	" "		1	
"	Moïse Beaulieu	" "		1	
"	Jos. Desroches	" "		1	
St-Félix de Valois	J. Armstrong	St-Gabriel de Brandon, Berthier		1	
"	Geo. Asselin	St-Félix de Valois			1
"	Eug. Boucher	"			1
"	Aug. Boucher & Frère	"			1
St-Jean de Matha	No report				
Ste-Mélanie	Zacharie Lepage	Ste-Mélanie		1	
"	Désiré Nadeau	"			1
St-Thomas de Jersey-Nord	Eug. Masse	St-Thomas		1	
"	Max Coutu fils	"			1
St-Paul de Lavaltrie	Adolphe Gingras	St-Paul d'Industrie		1	
"	Joseph Maleau	"		1	
"	Noé Desrosiers fils	"		1	
		Total	4	24	8

KAMOURASKA.

Kamouraska (Village)	Joseph Beaulieu	Kamouraska		1	
N.-D. Mont-Carmel	Chs. Roy & Cie	Ile aux Grues, Montmagny	1		
N.-D. de la Riv. Ouelle	J. A. Pelletier	Rivière Ouelle			1
St-Alexandre	Alexis Bélanger	St-Alexandre		1	
St-André	Desjardins & Marquis	St-André		1	
"	Wilfrid Marchand	"		1	
"	S. Dugal	"		1	
Ste-Anne de la Pocatière	Ecole d'Agriculture	Ste-Anne de la Pocatière	1		
"	Frs. Gendron	" "		1	
		Carry forward	2	6	1

KAMOURASKA—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	2	6	1
Ste-Anne de la Pocatière	Jos. Boucher	Ste-Anne de la Pocatière		1	
St-Denis	Aug. Dionne	St-Denis		1	
St-Germain	Edr. Pelletier	Cap St-Ignace, Montmagny		1	
"	Ls. A. Levêque	St-Germain		1	
Ste-Hélène	Edr. Pelletier	Cap St-Ignace, Montmagny		1	
St-Louis de Kamouraska	J. Michaud	Kamouraska		1	
St-Onésime d'Ixworth	France Gendron fils	Ste-Anne de la Pocatière		1	
St-Pacôme	Pierre Levêque	St-Pacôme		1	
"	Levêque & Danjou	"		1	
St-Paschal	J. B. St-Pierre	St-Philippe de Néri	1		
St-Philippe de Néri	Joseph Lavoie	"		1	
		Total	3	16	1

LAC ST. JEAN.

Delisle	Alfred Gagné	Delisle		1	
Hébertville	Robert Lemay	Hébertville	1		
"	Servule Tremblay	" (Caron)		1	
"	Charles Tremblay	" (Lac Kenogami)		1	
"	Joseph Gagnon	"		1	
N.-D. d'Hébertville (village)	Philippe Hudon	" (village)	1		
Normandin et Albanel	Alph. Poirier	Normandin			1
Roberval (Village)	Luc Lizotte	Roberval		1	
St-Bruno	Stanislas Pilote	Pasteur		1	
St-Félicien	Naud & Germain	Poiré, Portneuf		1	
St-Gédéon	Jos. Girard	St-Gédéon		1	
"	André Bouchard	"		1	
St-Jérôme	Elie Gagné	Metabetchouan		1	
"	Chs. Simard	"		1	
		Carry forward	2	11	1

LAC ST. JEAN—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	2	11	1
St-Jérôme	Octave Hudon	Metabetchouan		1	
"	George Perron	"		2	
St-Joseph d'Alma	Edm. Bergeron	St-Joseph d'Alma		1	
"	Liguori Harvey	"		1	
St-Ls. de Metabetchouan	Octave Lefrançois	Roberval		1	
St-Méthode	Jos. Potvin	St-Félicien		1	
St-Prime	Adélard Perron	St-Prime		1	
"	Côté & Lavoie	"		1	
St-Thomas d'Aquin	Alfred Boivin	Lac Bouchette		1	
		Total	2	21	1

LAPRAIRIE.

Laprairie de la Madeleine	Eus. Martel	Pierreville, Yamaska		1	
St-Constant	Jos. Fyfe	St-Constant	1		
St-Isidore	J. S. R. Pagé	St-Isidore (Village)	1		
"	Ed. McGowan	Ste-Martine, Chateauguay		1	
St-Jacques le Mineur	Elz. Martin	St-Jacques le Mineur		1	
St-Philippe	Léandre Gobeil	Baie St-Paul, Charlevoix		1	
		Total	2	4	

L'ASSOMPTION.

L'Assomption	No report				
" (Town)	Rév. J. Bte. Jobin	L'Assomption	1		
"	Alfred Longpré	"	1		
"	Jos. Parthenais	"	1		
"	Jos. Chevalier	"		1	
"	Philippe Lanoie	"		1	
Laurentides	Edm. Desmarais	Laurentides	1		
L'Epiphanie	Jos. Morand	L'Epiphanie	1		
Repentigny	Jos. N. Thouin	Repentigny			1
St-Charles Lachenaie	Wilfrid Frappier	Lachenaie			1
		Carry forward	5	2	2

L'ASSOMPTION—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Brought forward	5	2	2
St-Henri Mascouche	Sam. Chagnon	St-Paul l'Ermite	1		
"	Adélard Bourgouin	Mascouche	1		
"	Alph. Soucisse	"	1		
"	Louis Lamoureux	"	1		
"	Jean Durand	"	1		
St-Lin	Edm. Desmarais	Laurentides	1		
"	T. Corbeil	La Plaine, Terrebonne	1		
St-Paul l'Ermite	Sam. Chagnon	St-Paul l'Ermite			1
"	Philias Leveillé	"			1
"	F. O. Lachapelle	"	1		
St-Roch l'Achigan	Jos. Delongchamp	St-Roch l'Achigan	1		
"	Médéric St-André	"			1
St-Sulpice	Arthur Chicoine	St-Sulpice	1		
"	Jos. Robitaille	"	1	1	
		Total	16	3	5

LAVAL.

St-François de Sales	Delvica Adam	St-François de Sales		1	
"	O. Veillette	Louiseville, Maskinongé		1	
St-Martin	J. L. Allard	St-Martin		1	
Ste-Rose de Lima	Ald. Lahaie	Ste-Rose		1	
"	J. G. Héroux	"			1
Ste Rose (Village)	Archambault & Cossette	"	1		
St-Vincent de Paul	No report				
		Total	1	4	1

LÉVIS.

St-Etienne de Lauzon	Victor Plante	Baillargeon		1	
St-Henri de Lauzon	Henri Beaudoin	St-Henri de Lévis	1		
"	Adolphe Fortier	"		2	
"	Nap. Beaudoin	"		1	
		Carry forward	1	4	

LÉVIS—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	1	4	
St-Lambert	de Bacourt & Taché	Scott Junction	1		
"	Jos. Paquet	St-Lambert		1	
St-Nicholas	Alph. Bergeron	St-Antoine de Lotbinière		1	
"	Frs. Fouquet	Darveau		1	
"	Chs. Filteau	Fréchette		1	
"	Xavier Lambert	Ross Mills		1	
		Total	2	9	

L'ISLET.

L'Islet	L. A Boucher	L'Islet	1		
"	O. Carbonneau	"	1		
"	Eust. Ménard	L'Anse à Giles	1		
"	Cyrias Houle	Trois Saumons	1		
St-Aubert	(Syndicat de Cultivateurs)				
	Rév. Chs. A. Leclerc	St-Aubert	1		
St-Cyrille de Lessard	Désiré Mercier	St-Cyrille de l'Islet		1	
St-Jean Port Joli	Edr. Vaillancourt	St-Jean Port Joli			1
Ste-Louise	Jacques Collin	Montmagny, Montmagny	1		
St-Pamphile	Honorius Chouinard	St-Pamphile	1		
St-Roch des Aulnaies	Aug. Pelletier & Cie	Village des Aulnaies	1	1	
"	Dolard Gendron	St-Roch des Aulnaies		1	
		Total	8	3	1

LOTBINIÈRE.

Deschaillons	Francis Hamel	Parisville	1		
"	Edr. Barabé	St-Jean des Chaillons	1		
"	Arthur Paris	Parisville		1	
"	Victor Chandonnet	"		1	
"	Joseph Dubuc	St-Jean des Chaillons			1
St-Agapit de Beaurivage	A. Tremblay & Cie	St-Agapit	1		
"	Geo. Olivier	"			1
		Carry forward	3	2	2

LOTBINIÈRE—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Brought forward..	3	2	2
Ste-Agathe	Honoré Paquette	Ste-Agathe	1		
"	Oct. Boulanger	"	1		
St-Antoine de Tilly	Alphé Aubin	St-Antoine de Tilly		1	
"	Alph. Bergeron	"		1	
"	Edm. Lambert	"		1	
"	Wm. Lacroix	"		2	
St-Appolinaire	Ferd. Fortier	St-Appolinaire.		2	
"	Alphé Aubin	St-Antoine de Tilly		1	
Ste-Croix	Jos. Croteau	Ste-Croix		1	
"	Eug. Rhéaume	"		1	
"	Laliberté & Cayer	"		1	
"	Rinfret & Cie	"			2
St-Edouard	Honoré Castonguay	Rivière Bois Clair		1	
"	Edm. Daigle	"		1	
"	Théop. Daigle	"		1	
"	Onésime Lemay	"			1
"	Edr. Coulombe	"			1
Ste-Emélie	Damase Beaudet	Leclercville		1	
"	Adjutor Doré	"		1	
St-Flavien	Lazare Bédard	St-Flavien		1	
"	L. O. Ratté	Methot's Mills		1	
St-Giles de Beaurivage.	Naz. Demers	St-Giles		1	
St-Jean des Chaillons	Edr. Barabé	St-Jean des Chaillons	1		
"	Victor Chandonnet	Parisville		1	
"	Arthur Paris	"		1	
"	Frs. Hamel	"			1
St-Louis de Lotbinière	Philias Desrochers	Lotbinière	1		
"	Pierre Houde	"	1		
"	Narc. Thibaudeau	"		1	
"	Philias Laliberté	"		1	
		Carry forward	8	25	7

LOTBINIÈRE—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	8	25	7
St-Narcisse de Beaurivage.	Didace Kirouac	Newbois		1	
St-Patrice de Beaurivage.	Pas de rapport				
Ste-Philom.de Fortierville	L. P. Bourret	Ste-Philomène			1
St-Sylv. de Beaurivage.	Wm. Mackay & Cie	St-Sylvestre, West		1	
"	Robert Smith	Parkhurst		1	
"	Sam. Neil	St-Sylvestre, West		1	
"	Jos. Grégoire	" East		1	
"	Payeur & Bisson	" "			1
		Total	8	30	9

MASKINONGÉ.

Hunterstown	Henri Bergeron	St-Paulin		1	
Louiseville	Adrien Milot	Yamachiche, St-Maurice	1		
St-Alexis	Henri Bergeron	St-Paulin		1	
"	Philias Allard	St-Alexis des Monts		1	
St-Ant. de la Riv.du Loup.	Alphonse Paquin	St-Léon		1	
"	Hector Caron	"		1	
St-Didace	No report				
St-Joseph de Maskinongé.	Vve Ant. Saucier	Pont de Maskinongé	1		
"	Victor Sicard	Maskinongé		1	
"	M. Dalcourt	Pont de Maskinongé		1	
"	Arm. Dauplaise	Louiseville			1
St-Justin	Adol. Ladouceur	St-Justin		1	
"	Jos. Bussières	"		1	
"	Ant. Caron	"			1
St-Léon le Grand	Roy, Caron & Boisvert	St-Léon	1	2	
"	Paul Boisvert	"		1	
"	Sam. Lefrançois	"		1	
"	F. X. Dionne	"		1	
"	Wilbrod Ferron	"		1	
		Carry forward	3	15	2

MASKINONGÉ—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Brought Forward	3	15	2
St-Léon le Grand	Thos. Roy	St-Léon		1	1
"	Léonard Milot	"			1
"	Arthur Lessard	Ste-Ursule		1	
St-Paulin	Henri Bergevin	St-Paulin	1	2	
Ste-Ursule	Alfred Lessard	Ste-Ursule	1	1	
"	Norbert Fleury	"		1	
"	Isaac Fournier	"		1	
"	Henri Lessard	"		1	
"	Sam. Boucher	"		1	
"	Tous. Grenier	"		1	
		Total	5	25	4

MÉGANTIC.

Halifax North	No report				
Halifax South	Beaudoin & Provencher	Beaudoin		1	
"	Paul Grenier	St-Ferdinand		1	
"	Alfred Boulanger	"		1	
"	Oscar Gilbert	"		1	
"	Thibault & Boucher	"		1	
"	Masse Bergeron & Grégoire	"		1	
"	Masse & Bergeron	"		1	
"	Barth. Pelletier	"		1	
"	L. & O Gilbert	"			2
Inverness	John F. L. Cox	Glen Murray		3	
"	Thos. Davidson	Millfield		1	
"	Wm. Côté	Inverness		1	
Ireland	L A. Klein	Maple Grove	1		
"	Gilbert & Masse	New Ireland		1	
"	Jos. O. Roy	Richardville		1	
"	Basile Tanguay	Black Lake		1	
		Carry forward	1	16	2

MÉGANTIC—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	1	16	2
Ireland, North	Jos. O. Roy	Richardville		1	
"	Mercier & Bertrand	"		1	
"	Louis Filion	Thetford Mines		1	
Leeds	Robert Anderson	Wilson's Mills	1		
"	Fréd. Gagnon	West Broughton, Beauce		1	
"	J. A. McCallum	Leeds Village		1	
Leeds East	Alfred Gagné	Leeds East	1	2	
Nelson	Fran. Masse	Boissonneault, Mégantic		1	
Plessisville	P. O. Drouin	Somerset			1
Somerset North	Turcotte & Roy	St-Julie Station		4	
Somerset South	O. Morin	Somerset		1	
"	N. Bolduc	"		1	
"	D. Simoneau	"		1	
"	C. E. Gosselin	"			1
Ste-Anastasie de Nelson	Thomas Baril	Lyster		1	
" "	Lucien Lemay	"		1	
" "	Delphis St-Laurent	Lyster Station		1	
St-Pierre Baptiste	Louis Thibault	St-Ferdinand		2	
"	Geo. Simoneau	Ste-Sophie		1	
Thetford, North	J. O. Hébert	Sacré-Cœur de Marie		1	
"	Geo. Filion	" "		1	
"	Ray. Beaudoin	" "		1	
"	Léop. Sévigny	St-Ferdinand		1	
		Total	3	41	4

MISSISQUOI.

Bedford	Stewart Simmons	Bedford	1		
"	Emilien Lavigne	"		1	
Cowansville	Geo. Hubbard	Cowansville			1
Dunham (village)	J. L. Gilbert	Dunham			1
		Carry forward	1	1	2

MISSISQUOI—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Brought forward	1	1	2
Dunham	E. O. Hutchins	North Pinacle			1
"	N. Girard	Béranger		1	
"	Wm. Russell	Dunham		1	
"	J. G. Wales	East Dunham		1	
"	W. E. Perkins	"		1	
"	A. Cartier	Cowansville		1	
"	S. Ingalls	Dunboro		1	
"	John Miltimore	Scotstown, Compton		1	
Farnham	Eus. Martel	Farnham		1	
Farnham West	Amédée Charland	"		1	
"	Louis Laroque	"		1	
"	Wm. Tilson	"		1	
"	El. G. Welch	"		1	
"	Eus. Martel	"			1
Frelighsburg	Thos Morisson	Frelighsburg			1
N.-D. des Anges de Stanbridge	Alfred Courtemanche	N.-D. de Stanbridge		1	
N. D. de Stanbridge	Aug. Marois	"		1	
Stanbridge	Jered Hawk	Pearceton		1	
Stanbridge Station	Alphée Lamothe	Stanbridge Station	1		
St-Armand East	Frank Farnham	East Dunham		1	
" West	Wilson & McQuinn	St-Armand Station	1		1
" "	P. S. Taylor	Stanbury		1	
" "	Sam. Duhamel	Pigeon Hill		1	
St-George de Clarenceville	Sam. J. Roy	Sabrevois, Iberville	1		
"	A. H. Derick	Clarenceville		1	
"	Henry Auclair	"		1	
"	C. M. Harvey	Venice		1	
St-Ignace de Stanbridge	Alex. Roy	Mystic	1		
		Carry forward	5	22	6

MISSISQUOI—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	5	22	6
St-Ignace de Stanbridge	Em. A. Russell	North Stanbridge		1	
"	Jered Hawk	"			1
St-Thomas de Foucault	Mr. McGarry	Noyan		1	
Sweetsburg	J. Labombarde	Sweetsburg		1	
		Total	5	25	7

MONTCALM.

Chertsey	Alex. Rivet	St-Théodore		1	
"	Ludger Beauregard	"		1	
Kilkenny	Geo. Bennett	New-Glasgow, Terrebonne	1		
"	Moïse Sauriol	540, Mount-Royal St., Montreal		1	
Rawdon	John Lane	Rawdon		1	
"	Sinaï Bordeleau	"		1	
"	Mag. Barrette	"		1	
"	Cam. Beauséjour	"		1	
"	Ferland	"		1	
St-Alexis	Oct. Magnan	St-Alexis	1		
"	Ern. Liard	"	1		
St-Esprit	Ray. Lesage	St-Esprit	1		
St-Jacques	Clément Laviolette	St-Jacques	1		
"	Nap. Marion	"	1		
"	Fréd. Goyette	"	1		
Ste-Julienne de Rawdon	J. Bte Payan	Ste-Julienne		1	
St-Liguori	Joseph Gaudet	St-Liguori	1		
"	Aquila Lefebvre	"	1		
"	Moïse Brault	"		1	
Ste-Marie Salomée	J. B. Fontaine	Lanaudière Street, Joliette	1		
		Total	10	10	

MONTMAGNY.

MUNICIPALITIES	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
Berthier	Boucher & Mercier	Berthier (en bas)	1		
Cap St-Ignace	J. Eloi Jalbert	Cap St-Ignace	1		
"	Edm. Bélanger.	"	1		
"	Edouard Pelletier	"	1		
Montmagny	Geo. Fournier	Montmagny	1		
"	Naz. Bernatchez	"	1		
Montminy	Désiré Delagrave	St-Paul du Buton		1	
"	Théop. Nicole	"		1	
St-Antoine de l'Ile aux [Grues	Roy & Cie.	Ile aux Grues		1	
St-François Riv. du Sud	Adélard Bélanger	St-François Montmagny	1		
"	Jos. Blais	"		1	
St-Pierre Riv. du Sud	Zéph. Cloutier	St-Pierre	1		
"	Elzéar Blais	"	1		
		Total	9	4	

MONTMORENCY.

Chateau Richer	Télesphore Rhéaume	Chateau Richer	1		
L'Ange Gardien	Elzéar Huot	L'Ange Gardien	1		
"	Jos. Lortie	"	1		
Ste-Anne de Beaupré	Frs. Fortier	Ste-Anne de Beaupré	1		
Ste-Famille I. O	J. Ed. Boily	Ste-Famille	1		
St-Féréol	Syndicat de Fromage	St-Féréol		1	
St-Jean I. O	Gaud. Gagnon	St-Jean I. O	1		
St-Joachim	Séminaire Québec	Québec	1		
St-Pierre I. O.	Alfred Maranda	St-Pierre, I. O.	1		
"	Stanislas Gagnon.	Corner St-Félix and Coulombe Sts. [St-Sauveur, Québec.	1		
St-Tite des Caps	Philias Leblond	St-Tite des Caps		1	
		Total	9	2	

NAPIERVILLE.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
Napierville	No report				
St-Cyprien	Théop. Fortin	Napierville	1		
"	Horm. Béchard	"		1	
St-Edouard	Philias Serre	St-Edouard de Napierville	1		
"	Sévère Bessette	" "		1	
St-Michel Archange	Joseph Vanchestein	St-Michel de Napierville	1		
"	A. C. Bourdeau	"	1		
St-Patrice de Sherrington	Horm. Béchard	Douglasburg	1		
"	James Irvine	Dalkeith, Ont			1
St-Rémi de la Salle	Chs. H. Latour	St-Rémi	1		
"	James McGowan	Ste-Martine, Chateauguay		1	
		Total	6	3	1

NICOLET.

La Nativité de Bécancourt	Achille Carignan	Bécancourt	1	1	
"	Philémon Brassard	"		1	
"	Gasp. Côté	"		1	
Larochelle	Luc Forest	St-Grégoire			1
Nicolet	Lucien Doré	Nicolet			1
"	Nap. Desfossés	"		1	
"	Abra. Beaulac	"		1	
Ste-Angèle de Laval	Nap. Ricard	St-Grégoire		1	
Ste-Brigitte des Saults	Joseph Lemire	Ste-Brigitte des Saults		1	
"	Omer Parent	St-Elphège, Yamaska		1	
St-Célestin	Ludger Picher	St-Célestin		1	
"	George D Ellison	"		1	
"	Grég. Hébert	"			1
"	Philémon Duguay	"			1
St-Edouard de Gentilly	Hould & Fournier	Gentilly		3	
"	H. Eug. Fontaine	"		1	
		Carry forward	1	14	4

NICOLET—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	1	14	4
Ste-Eulalie	Thibodeau & Hamel	Ste-Eulalie		1	
"	Delphis Bergeron	St-Valère de Bulstrode, Arthabaska		1	
"	Germain St-Pierre	Arthabaskaville		1	
Ste-Gertrude	A. Ouellette	Ste-Gertrude		1	
"	Jos. Picher	"		1	
"	Noé Morissette	"		2	
"	Narc. Dorion	"		1	
"	Eus. Houle	Gentilly		1	
St-Grégoire le Grand	Hubert Dufresne	St-Grégoire		1	
"	Olivier Hébert	"		1	
"	Uld. Héon	"		1	
"	Auréus Bergeron	"		1	
"	Luc Thibodeau, sr	"		2	
"	Gédéon Houle	"		1	
St-Jean-Bte de Nicolet	No report				
St-Léonard	Jos. Ern. Doucet	St-Léonard d'Ashton		1	
"	Hyac. Cloutier	"		1	
"	Edm. Thibodeau	St-Grégoire		1	
"	Jos. Hébert	St-Léonard d'Ashton			1
Ste-Marie de Blandford	Alfred Baron	Ste-Marie de Blandford		1	
Ste-Monique	Chs. Milot	Ste-Monique	1	1	
"	Syndicat de Ste-Monique	"		1	
"	Syndicat du Grand St-Esprit	Grand St-Esprit		1	
"	Thomas Lafond	La Baie, comté Yamaska		1	
Ste-Perpétue	Luc Girard	Ste-Perpétue	1		
"	Eug. Beauchemin	"	1		
"	J. Bte. Beauchemin	Ste-Monique			1
St-Pierre les Becquets	Noé Mercure	St-Pierre les Becquets	1	1	1
"	Max. Audet	St-Jean des Chaillons, Lotbinière	1	1	1
"	Paul Spénard	St-Pierre les Becquets		1	
"	Alfred Naud	"		1	
		Carry forward	6	42	8

NICOLET—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	6	42	8
St-Pierre les Becquets	Ferd. Cinq-Mars	St Pierre les Becquets.		1	
"	Amb. Tousignan	Ste-Sophie de Lévrard		1	
St-Samuel	Adol. Bergeron	St-Valère de Bulstrode, Arthabaska.		1	
Ste-Sophie de Lévrard	Paul Barabé	Ste-Sophie de Lévrard.		1	
"	Naz. Trottier	"		1	
"	Damase Dubuc	"			1
St-Sylvère	Nestor Parent	St-Sylvère.		1	
"	Henri Mailhot	Ste-Gertrude.		1	
St-Wenceslas	Albert Thibodeau.	St-Wenceslas		1	
"	Luc Thibodeau	St-Grégoire		1	
"	Télesp. Vigneau	Aston Station		1	
		Total	6	52	9

OTTAWA.

Amherst	Norbert Racicot	St-Rémi		1	
Aylmer	P. M. A. Labelle	Aylmer Est	1		
Aylwin	Gordon & Reid	Aylwin		1	
Buckingham	Gorman & Henwood	Buckingham		1	
"	Thos. Ross & Son	Hawkesbury, Ont.		1	
"	Mr. Lamarche	Angers		1	
Hartwell	Jos. Joly.	Cheneville		1	
Hincks	Jos. Lasalle	Lac Ste-Marie		1	
" (South)	R. & H. Conroy	Deschênes Mills	1		
" (East)	No report				
L'Ange Gardien	Damase Meilleur	Angers		2	
Lochaber (North)	John A. Dent	St-Sixte		1	
" "	J. Jacob.	North Nation Mills.		1	
" (West)	Peter McLachlan	Lochaber Bay		1	
" "	George Ross.	Silver Creek.		1	
"	Rév. J. Chatelain.	Thurso		1	
		Carry forward	2	14	

OTTAWA—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Report	2	14	
Lochaber	James Blackburn	Thurso		1	
"	W. C. Edwards & Co.	North Nation Mills		1	
Lorn	Wm. Farrell.	Farrelton		1	
"	Wm. Gibson	Lasalles		1	
Masham	Aug. Trudel	Ste-Geneviève, Champlain.		1	
Montebello.	Ferd. Huneau	Montebello		2	
N.-D. de Bonsecours	"	"		1	
Northfield.	Aug. Trudel	Gracefield		1	
Pointe à Gatineau.	No report				
Ponsonby	Vve Chs. Libercent	177 St-Urbain st., Montreal		1	
Portland	H Charberlain.	Lucerne		1	
"	Thos. Ross & Son.	Hawkesbury, Ont.		1	
"	F. X Charbonneau	N.-D. de la Salette		1	
Ripon.	Albert Aubry.	Ripon.		1	
"	Donat Brunet.	Montpellier		1	
"	Alfred Provost	Valencay		1	
"	Louis Quesnel	Côte St-Pierre		1	
St-André Avelin	Victor Lalonde.	St-André Avelin		1	
"	J. Bte. Major	"		1	
"	Jos Bellisle	"		1	
Ste-Angélique	W. C. Edwards & Co.	North Nation Mills.	1		
"	Théot. Bonhomme	Papineauville.		1	
"	Jules Bricault.	Plaisance		1	
"	Vve H. Robinson	St-Amédée		1	
"	Jean Rieux.	St-André Avelin		1	
"	Horm Pilon	St-Philippe, Agenteuil.		1	
St-Malachie	F. M. Gorman.	Buckingham		1	
Suffolk & Addington	Stan. Archambault & Cie	St-Emile de Suffolk		1	
Templeton (East)	Damase Meilleur	Angers		1	
"	Trefflé Lamarche.	Cousineau		1	
		Carry forward	3	43	

OTTAWA—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	3	43	
Templeton (East)	Wm. Muir	Ste-Rose de Lima		1	
Thurso	Louis Savoie	Thurso		1	
Wakefield	No report				
" (West)	Wakefield Cheese Co	Wakefield		1	
"	Wm. Farrell	Farrelton		1	
Wright	Chs Tremblay	Pointe aux Trembles		1	
		Total	3	48	

PONTIAC.

Bristol	A. W. McKechnie	Elmside		1	
Clarendon	No report				
Ile du Calumet	F. H. Rouleau	Calumet Island		1	
Litchfield	Patrick Sloan	Vinton		1	
Portage du Fort	No report				
Shawville	"				
Témiscamingue	"				
		Total		3	

PORTNEUF.

N.-D. des Anges	J. P. Moreau	Montauban		1	
N.-D. de Portneuf	M. S. Delisle	Portneuf	1		
"	Narc. Piché	"	1		
"	Jos. Ford, jnr	"	1		
"	Daniel Papillon	St-Basile	1	1	
"	Frs. Marcotte	"		1	
"	Géd. Hamelin	Lachevrotière		1	
Pointe aux Trembles	Alfred Clermont	Pointe aux Trembles	1		
"	Nap. Angers	"		1	
"	Philias Hardy	"		1	
"	Sim. Gingras	"		1	
		Carry forward	5	7	

PORTNEUF—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	5	7	
St-Alban, Alton and Montauban.	Octave Naud.	St-Alban		2	
"	Hubert Perron	"		1	
"	John Savard	"		1	
St-Augustin de Desmaures	Phydime Rochette	St-Augustin	1		
"	Wilf. Vézina	"	1		
St-Basile	Bishop, Pepin & Cie	St-Basile Station	1		
"	Décarreau, Bernard & Cie	St-Basile	1		
"	France Bédard	"	1		
"	Leclerc & Marcotte	"		1	
"	McCarthy, Bernard & Cie	"		1	
St-Casimir	Rivard & Lacoursière	St-Casimir	1		
"	Tessier & Rivard	"		1	
"	Alfred Foley	"		1	
"	Henri Lachance fils Alf	"		1	
"	Jos. Perron	"		1	
"	Roch Massicotte	"		1	
"	Tancrède Germain	"		1	
Ste-Catherine de Fossambault	Wilfrid Vézina	Cap Santé		1	
"	Amb. Bussières	Pont Rouge		1	
St-Chs. des Grondines	Ls. Archambault	Grondines		1	1
Ste-Famille du Cap Santé	J. M. Bernard	Cap Santé	1		
"	Wil Vézina	"	1		
"	Gab. Hamel	"		3	
St-Gilbert	Oct. Naud	Paré		1	
"	Hubert Paquin	St-Gilbert		1	
St-J.-Bte. des Ecureuils	Hubert Angers	Les Ecureuils		1	
Ste-Jeanne de Neuville	Wilfrid Vézina	Cap Santé	1		
"	Gabriel Hamel	Pont Rouge		1	
St-Jos de Deschambault	Gédéon Laganière	La Chevrotière Station		2	
		Carry forward	14	31	1

PORTNEUF—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	14	31	1
St Jos. de Deschambault	Aubert Bédard	La Chevrotière Station		2	
"	Frs Paquin	Deschambault		1	
St-Raymond	J. de L. Taché	Scott Junction	1		
"	Louis Lesage	St-Raymond		1	
"	Adélard Perron	"		1	
"	Hubert Perron	"		1	
St-Ubalde	Jos. & Alf. Trudel	St-Prosper, Champlain		3	
		Total	15	40	1

QUÉBEC.

Beauport	Jules Bélanger	Beauport	1		
L'Ancienne Lorette	James Perry	Les Saules	1		
St-Ambroise de la Jeune Lorette	No report				
St-Chs de Charlesbourg	Narc. Hamel	Charlesbourg	1		
St-Dunstan du Lac Beauport	No report				
Ste-Foye	Syndicat de Beurrerie	Ste-Foye	1		
St-Gabriel de Valcartier	Lefebvre & Cie	Valcartier		1	
		Total	4	1	

RICHELIEU.

Sorel	No report				
St-Aimé	Esdras St-Germain	St-Aimé	1	1	1
"	Ls Lalancette	"		1	
"	Narcisse Leveillé	"		1	
Ste-Anne	Dr Latraverse & Cie	Ste-Anne de Sorel		1	
St-Joseph	Francis Paul	Sorel		1	
St-Louis	Ant. St-Martin	St-Louis de Bonsecours		2	
"	Norbert Laplante	St-Aimé		1	
"	J. B. Laplante	St-Louis de Bonsecours		1	
		Carry forward		9	1

RICHELIEU—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	1	9	1
St-Marcel	Odilon Vadboncœur	St-Marcel		1	
"	Albert Courchesne	Lanoieville			1
St-Ours	Pierre St-Germain	St-Judes, St-Hyacinthe		1	
"	Edr. Durocher	St-Ours		1	
"	Eus St-Germain	"		1	
"	Mag. Houle	Ste-Victoire		1	
"	Ls. H. Morin	St-Ours			1
" (Town)	Pierre St-Germain	St-Judes, St-Hyacinthe		1	
St-Pierre de Sorel	C. J C. Wurtele	Sorel		1	
St Roch	Alexis Collette	St-Roch		1	
St Robert	Esdras St-Germain	St-Aimé		3	
Ste-Victoire	Herc. PaulHus	Ste-Victoire		1	
"	Israël Larochelle	"		1	
		Total	1	22	3

RICHMOND.

Brompton	J. Léo. Cayouette	Brompton Falls	1		1
"	Arthur Martelle	"		1	
"	Zoël Pellerin	"		1	
Cleveland	Wm. Houle	St-Cyr		2	
"	Joe Ledoux	"		1	
"	Jos. Lefebvre	French Village, Drummond		2	
Danville	A. M. McCallum	Danville	1		
"	Joe Lafrance	"		2	
Melbourne&Bromp.Gore	H. L. Burt	Upper Melbourne		1	
"	A. McKey	"		1	
"	John A. McLeod	Melborough		1	
"	Jno. Munroe	"		1	
"	Gilbert Stalker	Flodden		1	
"	John Watson	Kingsbury		1	
		Carry forward	2	15	1

RICHMOND—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C-C
		Report	2	15	1
Melbourne & Bromp Gore	Jas. Dunbar	Melbourne Ridge		1	
"	H. W. Armstrong	Upper Melbourne.		1	
"	Wm. D. Stalker	Flodden		1	
Richmond	Wm. Houle	St-Cyr		1	
Shipton	Taché et Lefebvre	Denison's Mills		1	
"	Joe Parenteau	Asbestos		1	
Stoke	Frs Dubreuil	Stoke Centre		1	
St-F.-X. de Brompton	Bédard, Lamontagne & Cie.	St-F.-X. de Brompton		1	
"	Arnold Lindsay	Windsor Mills		1	
St-George de Windsor	Jos. Lépine	St-George de Windsor		2	
"	Geo. Richer	"		1	
"	Ad Marcotte	"		1	
"	Pierre Kirouac	"		1	
"	Noël Thibault	"		1	
Windsor	J. A. Camirand	Sherbrooke	1		
"	Charles Bégin	Windsor Mills		1	
"	Alex. Henderson	Corris		1	
"	Wm. Larocque	Windsor Mills		1	
		Total	3	33	1

RIMOUSKI.

Dalibaire et Romieu	Eug. Verreau	Petits Méchins	1		
MacNider	Chouinard & Roy	MacNider	1		
Matane (Town)	Fraser & Gagnon	Matane	1		
" (parish)	Harrison & Truchon	"	1		
" "	Stan Thibault	Petite Matane	1		
Mont Joli	Jos. Chouinard & Cie	Ste-Flavie	1		
"	Jos. Roy	" Station		1	
N.-D. Sacré-Cœur	Emile Bélanger	N.-D. de Rimouski	1		
		Carry forward	7	1	

RIMOUSKI—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	7	1	
St-Anaclet	Arthur Marmen	St-Anaclet		1	
Ste-Angèle de Mérici	Jos. Ross	Ste-Angèle de Rimouski		1	
" "	Victor Thibault	" "		1	
St-Benoit Joseph Labre	Elie Beaupré	Amqui		1	
Ste-Cécile du Bic	Amb Voyer	Bic		1	
"	Fréd Boucher	"		1	
St-Damase	Johnny Carroll	St-Damase		1	
St-Donat	Alfred Chouinard	Ste-Angèle de Rimouski		1	
St-Fabien de la Baie Ha ! Ha !	Edouard Jean	St-Fabien	1		
"	Rév Pierre Audet	"		1	
Ste-Félicité	Hermén Gagnon	Ste-Félicité	1		
Ste-Flavie de Lepage	David Rioux	Ste-Flavie Station	1		
"	Marcel Roy	Ste-Flavie		1	
St-Gabriel	Victor Thibault	Ste-Angèle de Rimouski		1	
St-Germain de Rimouski (town)	Samuel Coté	Rimouski	1		
St-Joseph de Lepage	David Rioux	Ste-Flavie		1	
Ste-Luce	Frs Gagnon	Ste-Luce Station		1	
St-Mathieu de Rioux	Alf. Belzile & Cie	St-Fabien	1		
St-Moïse	Rév. E. P. Chouinard	St-Moïse		1	
St-Octave de Métis	Phi. Mercier	St-Simon	1		
"	L. N. Langlais	St-Octave		1	
"	Ern. Desrosiers	"		1	
St-Pierre du Lac	Rév. G. Brillant	Lac Matapédia		1	
St-Simon de la Baie Ha ! Ha !	Alp. Nicolle	St-Simon	1		
St-Ulric de Matane	Stan. Thibault	Petite Matane	1		
St-Valérien	Jos Thériault	St-Valérien		1	
"	Jules Amyot	"		1	
Tessier	Ed. Gauthier	Fortin	1		
		Total	16	20	

ROUVILLE.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
Marieville	Jos. Archambault	Ste-Marie de Monnoir		1	
N.-D. de Bonsecours	Jos. Ostiguy	N.-D. de Bonsecours		1	
"	Donat Boucher	"		1	
"	Alf. Larivière	"		1	
"	Alp. Tétrault fils	"		1	
St-Ange Gardien	Jos. Lacoste	Ange Gardien	1		1
"	Elie Bourbeau	"			1
Ste-Angèle de Monnoir	Jos. Beauregard	Ste-Angèle			1
St-Césaire	Henri Normandin	St-Césaire		1	
"	Isidore St-Pierre	"		1	
"	Fréd. Maynard	"		1	
"	Wilfrid Bourbeau	"			1
St-Hilaire	Damien Benoit fils	St-Hilaire		2	
St-J.-Bte de Rouville	Nérée Bordua	St-J.-Bte. de Rouville		1	
"	Jos. Lambert	"		1	
"	P. Lambert & Cie	"		1	
"	E. Hébert & Cie	"		1	
"	L. Remy & Cie	Ste-Madeleine, St-Hyacinthe		1	
Ste-Marie de Monnoir	Frs. X. Marcoux	Ste-Marie de Monnoir		1	
"	Jos. Nadeau	"		2	
"	Hubert Gingras	"		1	
"	Joseph Gemme	"		1	
St-Mathias	Avila Trudeau	St-Mathias		1	
"	William Johnson	"		1	
"	Eph. Cardinal	"		1	
St-Michel de Rougemont	Osias Roy	Rougemont		1	
St-Paul d'Abbotsford	Jos. P. Rocheleau	Pauline	1		
"	Nap. Legros	Abbotsford		1	
		Total	2	25	4

SAGUENAY.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
Escoumains	Fabrique de Fromage	Les Escoumains		1	
"	Rév. Arthur Guay	Les Grandes Bergeronnes		1	
St-Pierre de la Pointe aux Esquimaux	No report				
		Total		2	

SHEFFORD.

Ely (South)	Modeste Choinière	Racine		1	
"	Delphis Choinière	"		1	
"	Laurent Racicot	Valcourt		1	
"	Hy. Bombardier	"		1	1
"	Jos. Veroneau	"		1	
"	Nelson Monfet	West Ely		1	
Granby	G. F. Payne	Granby		1	
"	James Duncan	South Granby		1	
"	E. Salois	"		1	
"	G. C. Boyd	"		1	
"	Tous. Auclair	Mawcook		1	
"	Wright Irvine	Granby		1	
"	And. Fossey	Granborough		1	
"	J. H Rocheleau	Mawcook			1
Roxton	Théod. St Onge	Roxton Est		1	
"	J. B. Derome	" Falls		1	
"	Rod. Favreau	" "		1	
"	Ferd. Brais	" "		1	
"	Jos. Brun	" Est			1
Roxton Falls	Ls. Brazeau	Roxton Falls		1	
"	Edeas Larocque	"			1
Shefford	Wm. Murray	West Shefford		1	
"	Jos. Hamilton	Waterloo		1	
"	J. B. Hubert	"		1	
		Carry forward		21	4

SHEFFORD—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward		21	4
Shefford	Edw. Doonan	Shefford Mountain		1	
"	L. E. Richardson	Warden			1
Shefford West	No report				
Stukely North	J. P. Lefebvre & Cie	Lawrenceville	1	2	
"	Fromagerie Notre-Dame	North Stukely		1	
"	Fromagerie St-Antoine	"		1	
"	Jos. Morin	Rochelle		1	
"	Jos. Hawkins	"		1	
"	Fromagerie Ste-Anne	"		1	
Stukely South	W. S. Purdy	South Stukely		1	
"	John Campbell	Rochelle		1	
"	Mag. Fleurant	North Stukely		1	
"	Euc. Phaneuf	Eastman, Brome		1	
St-Alphonse	Adélard Authier	St-Alphonse de Granby		1	
"	J. Bte. Dubé, jr	Angeline, Rouville		1	
Ste-Cécile de Milton	Simon Touchette	Milton Est			1
"	Azarie Côté	"		1	
St-Joachim de Shefford	Nap. Côté	St-Joachim		1	
"	Félix Langevin	"		1	
Ste-Pudentienne	Kernon George	Shefford Vale		1	
"	Désiré Chaput	Egypte		1	
"	Purdy & Savage	Shefford Vale			1
"	(Village). Nelson Mitchell	Granby			1
St-Valérien de Milton	André Dufresne	St-Valérien		1	
"	J. Bte. Dépot	"		1	
"	Désiré Chaput	Egypte		1	
"	André Brasseur	St-Valérien		1	
"	Horm. Paquette	"		1	
"	Rév. J. P. Côté	"			1
		Total	1	45	9

SHERBROOKE.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
Ascot	Valéri Duplin	Ascot Corner		1	
"	Moïse Rainville	Sherbrooke		1	
Compton	A. Gérin	Coaticook, Stanstead		3	
"	W. R. Doak	Hillhurst, Compton		1	
" (Village)	Compton Model Farm	Compton, Compton	1		
Lennoxville	Société, J. A. Hayes, manager.	Lennoxville	1		
Oxford	Jean Plante	Roch Forest		2	
"	Horm. Laplante	South Stukely, Shefford		1	
"	A. J. Whitehead	Cherry River		1	
Sherbrooke (Ville)	Alp. J. Camirand	Sherbrooke	1		
		Total	3	10	

SOULANGES.

La Station du Coteau	Emery Sauvé	Coteau Station	1		
St-Clet	J. Bte. Marleau	St-Clet			1
St-Ignace du Coteau du Lac	Jos. A. Bourbonnais	Pont Château	1		
"	Jos. Lalonde	Coteau du Lac		1	
St-Jos. de Soulanges	Godfroy Constant	St-Dominique des Cèdres	1		
"	Emery L'Ecuyer	"	1		
"	Sam. Leroux	Cèdres	1		
" (Village)	Oliv. Charlebois	Cèdres	1		
St-Polycarpe	F. X. Plante	St-Frédéric, comté Beauce		1	
" (Village)	J. H. L. Leclair	St-Polycarpe	1		
St-Télesphore	Jos. H. Gareau	St-Télesphore	1		
"	Ls. Charlebois	"	1		
St-Zotique	Frs. Méthot	Rivière Beaudette			
"	D. M. McPherson	Lancaster, Ont.		1	
		Total	10	3	1

STANSTEAD.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
Barford	Jas. Mullin	Coaticook		1	
"	Ev. Vincent.	Villette, Compton.		1	
"	Phi. Tougas	Dixville		1	
"	Olivier Trudeau	Coaticook		1	
"	J. P. Dupuis	St-Herménégilde		1	
Barnston	G. B. Hall	Barnston	1	1	
"	E. N. Heath	Way's Mills	1		
"	Fred. C Brown.	"		1	
"	W. J Niblock	Kingscroft		1	
"	C. A. Kezar.	South Barnston		1	
"	W. W. Heath	Heathton		1	
"	H E. Corliss.	Corliss		1	
"	Edwin C. Wells	Ladd's Mills		1	
"	A. St-Martin.	Coaticook		1	
"	Auguste Gérin	"		1	
Coaticook	L. A. Gérin.	"	2	7	
Dixville	Alb. Humphrey	Dixville.		1	
Hatley	No report				
Magog	S. Carrier	Magog		1	
" (village)	No report				
Stanstead	S. W. Sargeant	Way's Mills	1		
"	W. W. Heath	Heathton		1	
"	C. A. Kezar.	South Barnston.		1	
"	H. E. Corliss	Corliss Mills		1	
"	Fred. Martin	Barnston		1	
"	W. K. Baldwin.	Baldwin's Mills		1	
"	Wm. Brown.	Way's Mills		1	
"	Jos. Colt	Hatley		1	
"	Jas. McKay.	East Hatley		1	
"	Katevale Cheese factory	Katevale		1	
"	Alex. Thompson	Cassville		1	
"	F. P. Renick	Fitch Bay		1	
		Carry forward	5	34	

STANSTEAD—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	5	34	
Stanstead	Anson B. Davis	Marlington		1	
"	Chs. A Jenkins	Smith's Mills		1	
"	Geo. B. Hall.	Barnston Corner			1
"	Eug. A. Baldwin	Stanstead Plain			1
"	Nelson Fish	Minton			1
"	Jas. Morrison	East Hatley			1
		Total	5	36	4

ST-HYACINTHE.

La Présentation	M. A. Piché	La Patrie, Compton		2	
N.-D. St-Hyacinthe	Nap. Bienvenu	St-Hyacinthe		1	
"	La Banque de St-Hyacinthe.	"			1
"	J. A. Archambault	"			1
St-Barnabé	Jos. Langevin	St-Barnabé		1	
"	F. H. Chapdeleine	"		1	
"	Philias Leblanc	"		1	
St-Charles	Clod. Milette.	St-Charles, Riv. Richelieu		1	
St-Damase	Z. T. Marchessault	St-Damase		2	
"	Jacques Jodoin	"		1	
St-Denis	J. Bte Phaneuf	St-Denis, Riv. Richelieu		1	1
"	Pierre Anger	" "		1	1
"	Michel Richard.	" "		1	
St-Hyacinthe le Confesseur	Ecole d'Industrie Laitière	St-Hyacinthe			1
St-Jude	Aug. Germain	St Jude		1	
"	Pierre St-Germain	"		1	
"	L. A. L'Heureux	"			1
Ste-Marie Madeleine	Horm Larue	St-Denis Riv. Richelieu		1	
"	Nap. Chabot.	Ste-Madeleine		1	
St-Thomas d'Aquin	Cléophas Lussier	St-Barnabé		1	
"	Michel Piché.	La Présentation		1	
"	Dorion & Senécal.	St-Hyacinthe		1	
		Total		20	6

ST. JEAN.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
St-Bernard de Lacolle	L. A. Corbière	Lacolle		1	
"	Jas. W. Stewart	Henrysburg		1	
St-Jean	J. A. Langelier	St-Jean	1		
St-Blaise	Sam Roy	Sabrevois, Iberville	1		
"	Thomas Girard	St-Jean		1	
St-Luc	Cheese factory	St-Luc		1	
Ste-Marguerite de Blairfindie	Henri Ouimet	L'Acadie	1		
St-Valentin	J. M. Hébert	St-Valentin			1
		Total	3	4	1

ST. MAURICE.

La Visitation de la Pointe du Lac	Olivier Duplessis	Pointe du Lac	1		
"	Fréchette & Déchesne	"		1	
"	Jos. Ant. Garceau	"		1	
Ste-Anne d'Yamachiche	Adrien Milot	Yamachiche			1
St-Barnabé	Paquin & Lefrançois	St-Barnabé			1
"	Milot & Corriveau	"			1
"	Thos. Lacerte	"			1
"	Alphonse Grenier	"			1
"	Phi. Gélinas	"			1
"	Wilfrid Alliotte	"			1
"	Naz. Héroux	St-Sévère		1	
St-Boniface de Shawenegan	No report				
St-Elie	Ludger Rivard	St-Elie		1	
"	Isaïe Déchaine	"		1	
St-Etienne des Grès	Rap St-Onge	St-Etienne des Grès	1		
"	Nap. Ringuette	Ste-Ursule, Maskinongé		1	
Ste-Flore	Hilaire Lupien	Ste-Flore		1	
"	Benjam. Lavergne	"		1	
		Carry forward	2	8	7

ST-MAURICE – *Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Brought forward	2	8	7
Ste-Flore	Narc. Beaulieu	Ste-Flore		1	
"	Uldaric Leblanc	"			1
St-Mathieu	Thos. Déziel	St-Mathieu de Caxton		1	
St-Sévère	Victor Milot	St-Sévère	1		
"	Alfred Ferron	"		1	
"	Paul Pelletier	"		1	
"	Tous. Grenier	Ste-Ursule, Maskinongé		1	
Trois-Rivières (ville)	Horm. Duval	Banlieue des Trois-Rivières			1
"	J. A. Milot	Ste-Marguerite Rivière	1	1	
Yamachiche	Thos. Meunier	Yamachiche		1	
"	L. E. Lajoie & Cie	"		1	
"	Hercule Bourassa	"			1
"	Thos. Roy	St-Léon, Maskinongé		1	
		Total	4	17	10

TÉMISCOUATA.

Bégon	J. Oct. Masse	St-Jean de Dieu	1		
Fraserville	Wm. Fraser	Fraserville	1		
Hocquart	Ern. Dicnaire	(St-Epiphane) Viger	1		
Isle Verte	Préfontaine & Frère	Isle Verte	1		
Madawaska	Louis Gagnon	Riv. Ouelle, Kamouraska		1	
St-Antoine	Florentin Soucy	St-Antoine		1	
St-Arsène	April & Cie	St-Arsène	1		
St-Clément	Fabrique de beurre	St-Clément	1		
St-Eloi	Cyrice Godbout	St-Eloi	1		
St-François-Xavier	Pas de rapport				
St-Hubert	Fabrique de beurre de St-Hubert	Viger (St-Epiphane)	1		
St-Louis du Ha! Ha!	M. Drouin	Somerset, Mégantic		1	
St-Paul de la Croix	Beaulieu & Saindon	St-Paul de la Croix	1		
		Carry forward	9	3	

TÉMISCOUATA—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	9	3	
Trois-Pistoles	Euclide Hébert	Trois-Pistoles	1		
"	David Francœur	"	1		
"	Alp. Nicolle	St-Simon, Rimouski	1		
St-Epiphane	Aug. Breton	Viger (St-Epiphane)	1		
"	Frs. Patoine	" "	1		
Whitworth	No report				
		Total	14	3	

TERREBONNE.

Abercrombie	E. Brosseau	St-Sauveur des Montagnes	1		
De Salaberry et Grandison	Célestin Bisson	St-Jovite		1	
"	Nestor Geffrey	"		1	
Doncaster	Israël Thouin	Ste-Lucie de Doncaster		1	
New-Glasgow	Geo. Bennett	New-Glasgow	1		
Ste-Adèle	W. Kimpton	Ste-Thérèse de Blainville	1		
"	Edm. Longpré	Ste-Adèle		1	
"	Marc Legault	"		1	
Ste-Agathe	Oct. Auclair	St-Liboire, Bagot		1	
"	J. de L. Taché	Scott Junction, Beauce		1	
Ste-Anne des Plaines	Siméon Giguère	Ste-Anne des Plaines	1		
St-Janvier	Jos. Desroches, gérant	St-Janvier		1	
St-Jérôme	Wilb. Gareau	St-Jérôme	1		
"	Israël Dion	"	1		
"	Pierre Simard	"		1	
"	Allard & Côté	"		1	
Ste-Marguerite du Lac Masson	Chs. Lamb	Shawbridge	1		
St-Sauveur	John Kimpton	"	1		
"	Alb. Kimpton	Piedmont	1		
"	Edm. Brosseau	St-Sauveur des Montagnes	2		
		Carry forward	11	10	

TERREBONNE—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Brought forward	11	10	
Ste-Sophie de Lacorne	No report				
Ste-Thérèse de Blainville	Alex. Miller	Ste-Thérèse de Blainville	1		
"	Damien Leclair & Cie	"	1		
"	Albert Garth	"	1		
" (village)	Damien Leclair & Cie	"	1		
Terrebonne (town)	Henry Moody	Terrebonne	1		
Wolfe	No report				
		Total	16	10	

VAUDREUIL.

Como	Simpson & Larocque	Hudson	1		
Newton	Don. S. Morrison	Peveril		1	
"	Ant. Besner	Ste-Justine de Newton	1		
Pointe Fortune	Thos. Ross & Son	Hawkesbury, Ont	1		
Rigaud (village)	J. Bte Besner	Rigaud			1
Ste-Jeanne de Chantal de [l'Ile Perrot	Azilda Daoust	Ile Perrot	1		
"	Eus. Peladeau	"		1	
St-Lazare	Oscar Denis	St-Lazare de Vaudreuil	1		
Ste-Madeleine de Rigaud	Treffié Pilon	Rigaud		1	
Ste-Marthe	Alf. O. Ranger	Beauvoir	1		
"	Harry Hudson	Ste-Marthe	1		
"	Peter Monahan	"		2	
"	Rosario Séguin	Séguin		1	
St-Michel de Vaudreuil	Basile Charlebois	Vaudreuil	1		
"	Osias Brasseur	"	1		
"	Paul Denis	"	1		
" (village	Amédée Castonguay	"	1		
Très Saint Rédempteur	Geo. Valois	St-Rédempteur	1		1
"	Nap. Quesnel	"		1	
		Total	12	7	2

VERCHÈRES.

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
Ste-Anne de Varennes	Oct. Allard	Varennes		1	
St-Antoine, Riv. Chambly	Cartier, Archambault & Bonin	St-Antoine	1		
"	Elie Gaudet	"		1	
St-F.-X. de Verchères	Jos Dansereau	Verchères	1		
Ste-Julie	Louis Blain	Ste-Julie de Verchères		1	
St-Marc de Cournoyer	Alexis Chicoine	St-Marc	1		
"	Gasp. Leroux	"		1	
St-Mathieu de Belœil	No report				
Ste-Théodosie	Bruno Larose	Ste-Théodosie		1	
Ste-Trinité de Contrecœur	Jos. Cormier	Contrecœur	1		
"	Ls. Fontaine	"		1	
		Total	4	6	

WOLFE.

D'Israëli	S. E. Adam	D'Israëli	1		
Dudswell	W. C. Bishop	Bishop's Crossing		1	
"	T. C. Osgood	Dudswell Centre		1	
"	Ephrem Lizée	Marbleton		1	
Garthby	Achille Jacques	Garthby		1	
Ham (North)	Chs. Lavigne	Fecteau's Mills	1		
"	Ls. Lavigne	"		1	
"	Alb. Lavigne	"		1	
"	Jos. Lehoulier	Ham, North		1	
"	Ach. Richer	"		1	
"	Jos. Picard	"		1	
"	Herm. Guertin	"		1	
"	David Cloutier	"		1	
"	Chs. Patry	"		1	
Ham (South-West)	J. G. Brochu	St-Adrien		1	
Lac Weedon	P. J. Després	Weedon		1	
St-Camille	Dr A. Thibault	St Camille	1		
		Carry forward	3	14	

WOLFE—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	CC
		Brought forward	3	14	
St-Camille	Delphis Bonhomme	St-Camille		1	
"	J. B. Nadeau	Marbleton		1	
St-Fortunat de Wolfestown	Girard & Frère	St-Fortunat (Coté's Mills)		1	
" "	Laz Masse	"		1	
" "	Nor. Laventure	"		1	
" "	Jos. Pelletier	"		1	
St-Jos. de Ham Sud	Jos. Bergeron	Ham South		1	
Stratford	Ls. Hébert & Frère	Lake Aylmer		1	
"	Gédéon Héon	"		1	
Weedon	L. A. Lussier	Weedon Centre		1	
"	Jérémie Fisette	" Station		1	
"	Mag. Demers	" "		1	
"	Donald McLeod	" "		1	
"	Vve Sim. Fontaine	" Centre		1	
Weedon Centre	Frs. Ouellet	Ste-Gertrude, Nicolet		1	
" "	Victor Côté	Weedon Station		1	
Wolfstown	Louis Gilbert	St-Ferdinand, Mégantic		5	
"	Gilbert & Morin	Wolfestown		1	
Wotton	J. de L. Taché	Scott Junction, Beauce	1		
"	Bilodeau & Cie	Wotton		1	
"	J. Lefebvre & Cie	Kingsey, Drummond		1	
"	Taché, Lemire & Lefebvre	Wotton		1	
"	Jos. Gilbert	"		1	
		Total	4	40	

YAMASKA.

Pierreville	Ida Niquette	N.-D. de Pierreville		1	
St-Antoine de la Baie du Febvre	J. L Lemire	La Baie	1	2	1
" "	Drouin, Lemire & Cie	"	1	2	1
" "	Elie Proulx	"	1	1	1
		Carry forward	3	6	3

YAMASKA—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	3	6	3
St-Ant. de la B. du Feb.	Allard & Demers.	La Baie		2	
" "	Zéphirin Duguay	"		1	
" "	Belarmin Jutras	"		1	
" "	Charles Drouin	"	1	1	
" "	Duguay & Cie.	"		1	
St-Bonaventure d'Upton	Sa Pelletier	St-Bonaventure d'Upton		1	
"	Dorilla Desmarais	"		1	
"	Eus. Proulx & Cie	La Baie		1	
St-Elphège	Siméon Paquette & Cie.	St-Elphège	1	2	
"	Félix Desfossés	"		1	
St-David de Déguire	Nap. Richard	St-David de Yamaska		1	
"	Chs. Cyr	"		1	
"	Horm. Lebrun	"		1	
"	Moïse Desblois	"		1	
"	Jacob Paré	"			1
St-François du Lac St-Pierre	J. N. Duguay & Cie.	La Baie	1	1	1
"	Narc. Parenteau	Yamaska, West		1	
"	J. O. Duhaime	"		1	
St-Guillaume d'Upton	Martin & Fontaine	Pierreville		1	
"	Louis Vallée	St-Guillaume d'Upton		1	
"	J. B. Vigneault	"			1
"	Adélard Lanoie	"			1
St-Michel d'Yamaska	Parenteau & Parenteau	Yamaska		1	
" "	C. Robidou & Cie.	"		1	
" (village)	Roch P. Parenteau	"		1	
" "	Thos. Delaney	"		1	
St-Pie de Guire	Edm. Dauplaise	St-Pie de Guire		1	
"	V. Beaulac et al	St-David de Yamaska		1	
"	Nap. Richard & Cie.	"	1	1	
		Carry forward	7	34	7

YAMASKA—*Continued.*

MUNICIPALITIES.	PROPRIETORS OR MANAGERS.	ADDRESSES.	C	C	C C
		Brought forward	7	34	7
St-Thomas de Pierreville	Wm. Parent	St-Elphège	1		
"	Duhaime & Frère	St-François du Lac		1	
"	Félix Desfossés	St-Pie de Guire		1	
"	Allie Amant	Pierreville		1	
St-Zéphirin de Courval	Herm. Lefebvre	St-Zéphirin			1
"	J. N. Duguay	La Baie		2	
"	Jos. Rousseau	St-Zéphirin		1	
"	Toussaint Roy & Cie	"		1	
"	Onésime Cloutier	"		1	
"	Cyprien Jutras	"		1	
"	Omer Parent	Berthierville, Berthier		1	
"	Aimé Leclair et al	St-Zéphirin		1	
"	Alex. Simoneau	"		1	
"	Euclide Lahaie	"		1	
"	G. P. Rousseau	"		1	
		Total	8	48	8

RECAPITULATION.

COUNTIES.	CREAMERIES.	CHEESERIES.	C. AND C. COMBINED.
Argenteuil	2	33	2
Arthabaska	4	50	5
Bagot	3	26	20
Beauce	10	97	3
Beauharnois	1	20	2
Bellechasse	12	9	0
Berthier	7	19	7
Bonaventure	0	5	0
Brome	9	26	5
Chambly	2	3	0
Champlain	5	49	8
Charlevoix	0	26	2
Chateauguay	2	19	5
Chicoutimi	4	26	4
Compton	3	22	2
Deux-Montagnes	16	12	4
Dorchester	5	36	1
Drummond	2	31	4
Gaspé Nos. 1, 2 and 3	3	0	1
Hochelaga	1	1	0
Huntingdon	7	27	7
Iberville	3	10	1
Jacques Cartier	7	0	1
Joliette	4	24	8
Kamouraska	3	16	1
Lac St-Jean	2	21	1
Laprairie	2	4	0
L'Assomption	16	3	5
Laval	1	4	1
Lévis	2	9	0
L'Islet	8	3	1
Carry forward	146	631	101
			20

COUNTIES.	CREAMERIES.	CHEESERIES.	C. AND C. COMBINED.
Brought forward.....	146	631	101
Lotbinière	8	30	9
Maskinongé	5	25	4
Mégantic	3	41	4
Missisquoi	5	25	7
Montcalm	10	10	0
Montmagny	9	4	0
Montmorency	9	2	0
Napierville.....	6	3	1
Nicolet	6	52	9
Ottawa.....	3	48	0
Pontiac	0	3	0
Portneuf.....	15	40	1
Québec	4	1	0
Richelieu	1	22	3
Richmond.....	3	33	1
Rimouski	16	20	0
Rouville	2	25	4
Saguenay.....	0	2	0
Shefford	1	45	9
Sherbrooke.....	3	10	0
Soulanges	10	3	1
Stanstead	5	36	4
St-Hyacinthe.....	0	20	6
St-Jean	3	4	1
St-Maurice	4	17	9
Témiscouata.....	14	3	0
Terrebonne.....	16	10	0
Vaudreuil.....	12	7	2
Verchères	4	6	0
Wolfe.....	4	40	0
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